

ECONOMIC DEVELOPMENT *and Cultural Change*



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A journal designed for exploratory discussion of the problems of economic and cultural change. Preliminary versions of research findings and research hypotheses are welcomed in the interest of provoking constructive and fruitful discussion.

R. Richard Wohl, Editor

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EDITORIAL

I

This is a brief sketch of the research strategy envisioned by the Center for its work in the immediate future. We have chosen three fields on which to concentrate our efforts; and these have been hard choices to make. Our subject bristles with fascinating problems; a constant temptation to digression from our main purposes. Before describing these projects in detail, however, it may be useful to describe the thinking which went into helping us make a selection.

Our first consideration was that we should not waste previous scholarship and experience, but this is a difficult economy to effect. What we choose to call "economic development and cultural change" embraces a large group of studies which, in different guise, are traditional to the social sciences. In the past, relevant work has been done with other, different purposes in mind than those we now follow. Assembling and assessing this material, which is vast in its proportions, seems to us one of the shortest ways to making headway in our chosen field of study. All other difficulties aside (and these are many) the first step to making such an inventory of past work is to establish our special point of view in relation to it. In part this has already been done in the brief statement we published in our last number.

We are interested in situations of positive economic growth, that is to say, societies in which an increase of average or total real income is intended or is making itself manifest. Such societies, in an attempt to reach higher output and a higher plane of living, are undergoing transition from past forms of social and economic organization to newer ones which will help them to realize economic potentialities for a better life. This is by no means a new problem in itself. The chief present difference is that, with very few exceptions, similar efforts in the past have been more gradual, more localized, and less deliberate. What is novel today is that the underdeveloped areas of the world have made of economic development a high ideal. They have associated it, in the minds of their peoples and in their policies, with political independence, a sense of sovereignty, thought of it as a means to redress long-felt inferiority and chagrin. And, aside from pride and power, they are filled with a feeling that it is practical and possible to overcome the persistent hunger, the preventable disease, death and misery which, among them, is commonplace. Thus, while the problems may not, in many ways, be new, the approach to them is original in the scope and pace by which change is to be carried out.

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It is this combination of the new and the old which, in our eyes, makes a careful study of what has already been learned especially desirable. We propose, therefore, to approach this past knowledge and experience in two ways. First, we wish to survey the several social sciences and to make a propositional

inventory of their resources. We have now roughly mapped out the categories and the problems we wish to survey; and although this is only a preliminary sketch we are encouraged to think that it will be a useful one which can be expanded or reduced as further study demands. This judgment is based on several grounds which, it seems to us, are worthy of careful consideration.

We have in our short statement five major categories which experience with a University of Chicago Faculty Seminar has shown us to be meaningful for interdisciplinary work. Nearly all departments and committees of the Division participated in a seminar based on these categories and, if we judge the discussions which followed correctly, they were found useful to specialists in nearly all fields likely to engage themselves in our subject. We have in addition collected several hundred questions which detail the general points raised under these five headings which can be amalgamated with our general statement. Our approach has also been used in courses in several universities and we have received considerable encouragement to elaborate it in letters which followed its publication in our journal.

It is our intention, therefore, to compile this material into a "guide" to be used in the propositional inventory we envision. Into the "empty boxes" of our various headings we intend to place materials and concepts originating in the various social science disciplines. This task, as we see it, is not one of simple compilation alone, but requires critical treatment as well. Methodological dexterity will be needed to establish and present the degree of validity of the materials collected in this fashion, to effect their comparability or to show in what way they are not comparable, as well as to confront the numerous practical difficulties which attend piecing-out knowledge and ideas.

This project seems promising to us on two counts: It will reveal (if successful) the extent to which past thought and study can help us in our present concerns; it will also produce an important negative finding. It will disclose, in an especially fruitful and precise way, what yet remains to be done and, especially, may help to instruct us, by example, on what are the chief priorities for future research in this field as a whole.

Before we leave this project, it may be useful to explain our approach to it. This project, and the materials which preceded it, were not the result of a deliberate effort at autonomous "theorizing." In the beginning, we were completely pragmatic. We asked ourselves many questions which seemed both apt and sensible, and having so many good questions to ask, we anticipated that we could go directly to work answering some of them. We soon found that this seemed easier to do than it actually was. Our questions could not be neatly cut off from a host of related, controlling variables. If these connections were blurred our answers tended to be vague, overly partial, disappointingly qualified. In some cases, a determined effort to work out an "answer" led only into a blind alley. Nor were we alone in this. Contemporary discussions of underdeveloped areas, starting from a particular problem, abound in the re-

vealing metaphor that these areas are enwrapped in "vicious circles." Any single policy of improvement tends to be countered by offsetting factors which cancel out the intended benefit. We feel, therefore, that re-setting our problems on a higher level of generalization may serve to provide us with the perspective that a more precise and limited phrasing denies us.

III

Our second project also seeks to exploit the work and experience of the past. As we have said, many of today's problems of development differ from those of the past only in that their scale is greater, their pace more rapid. But there is a solid core of knowledge to be gained from history which illumines the developmental process and highlights the contrast between past and present efforts in the field. Historical examples of this kind are available in great number. The most outstanding cases in point are those countries of Western Europe now counted among the most highly developed regions of the world, as well as the more recent instances of Japan and the USSR.

To illustrate our approach to such materials as these we may cite the case of Japan. This Asiatic country was underdeveloped (in the present sense of the word) when it was forced into contact with the western world in the nineteenth century. Before then, centuries of contact had not prevailed on the Japanese who had limited it to a thin trickle of carefully controlled intercourse with the West. Once opened to the world, transforming changes took place with dazzling speed. In Asia, Japan is today the senior industrial power, the nearest analog (and a close competitor) of the European industrial powers. It was, at the outset of its development, a country very poor in resources. Japanese society and Japanese culture were ringed about with elaborate codes of belief, law, and customary sanction which frowned on the values and activities of the West which, shortly, Japan set out to imitate and overtake. It would have been safe to say in the middle of the nineteenth century that there were few countries in Asia that seemed to have less prospect than Japan of achieving what it ultimately accomplished.

Not only did Japan create a modern productive industrial economy but, in addition, with seeming uncanny prescience, "foresaw" the strains and adjustments which would be required to assimilate a changed organization of production to its traditional culture. This remarkable feat has been noted on every side and dismissed with the easy (and fallacious) explanation that the Japanese were a nation of "imitators."

By a system of well-timed and effective social controls the majority of samurai (who opposed change and development) were liquidated; the country forebore to borrow foreign capital for fear of internal interference by foreign creditors (the lesson of China was quickly learned and as quickly acted on); it formed and invested its own capital required for expansion; and elaborate arrangements were made to select leaders who were anxious and able to learn the necessary economic, political and social techniques demanded by an industrial society. Rarely, for instance, has cultural change been effected with more sol-

emn aplomb than that which attended the making of a Japanese constitution. These changes were not only numerous but were made rapidly and in depth. This remarkable achievement is without parallel in Asia or the world.

In contrast to this exceptionally successful case, there are the puzzling "negative" cases. In some countries--Spain and Ireland--it appeared, in the 16th and 17th centuries, that excellent opportunities for economic development existed. An active and numerous population, abundant capital, a rich culture, a seemingly vigorous and adept elite were at hand, yet there was only decline, a slackening of effort, and, in the end, relative stagnation. These countries remained underdeveloped, and it would be interesting to examine just how much their relatively rigid social structures contributed to the result. A third group of countries where such hypotheses might be tested are the presently underdeveloped countries. In the course of development what changes do social structures undergo in these countries (in India, for example, and in a Latin American country such as Mexico), and what alternative processes to direct social revolution can be found to further those conditions which make for economic progress, at least with reference to control over economic goods?

Another problem--apart from the functional relations of variables inducing economic growth--which actively engages our interest is the problem of the minimum scale of effort required for successful economic development. Currently discussion of economic development tends to assume that a country is the basic unit of observation. But historical inspection seems to imply that developmental processes are associated often with regional rearrangement. This seems to suggest that a fruitful study of economic development must take account of the unit for which development, as presently envisioned, is feasible. In countries as big as India or Brazil, and even in Indonesia, Mexico or Turkey, the national territory may be large enough to provide a suitable basis for development. However, the smaller countries of Southeast Asia, and notably those of Central America and the Caribbean seem to present instances where the economic progress of each national unit, by itself, cannot, it appears, be considered without reference to the economic progress of neighboring countries.

It is therefore proposed to study the problem of regional development with special reference to two areas: Southeast Asia and Central America. This work can be much facilitated by the fact that there exist regional plans of integrated development for both regions. The Colombo Plan for Southeast Asia has already received a good deal of attention but deserves further study. In Central America, the Economic Commission for Latin America is currently working on a regional development plan. A comparative study of regional development in Southeast Asia and Central America might provide fruitful insights, not only in the problems of the scale required for effective development, but also respecting the political and economic problems affecting the economic growth of a region taken as a unit.

STEEL INDUSTRIES IN UNDERDEVELOPED COUNTRIES*

Introduction

The spread of steel production to the less industrialized parts of the world has been a significant phenomenon of the past 30 years. Whereas in 1914 fifteen countries had steel industries that produced more than 100,000 tons of crude steel annually, (1) by 1950 that number had almost doubled and nine additional countries had commenced making steel in smaller amounts. This trend received particular impetus from the shortages felt by steel importing countries during World War II, and today many of the recently established industries are in the process of expanding while the start of even more new ones is being planned.

The economic evaluation of a steelmaking project in an underdeveloped country may be quite a difficult task. It must necessarily depend upon the attractiveness of alternative types of investment as well as upon specific factors intimately related to the project itself. The problem of determining the relative benefits of investing in steelmaking or in entirely different fields such as transportation, power, cement, textiles, cannot usefully be dealt with outside the context of a particular situation and for this reason it will not be discussed here. Accordingly the principal emphasis of this paper will be upon those aspects of the evaluation more closely related to the project itself. This becomes essentially a concern with the conditions under which steel investment may be economically justified regardless of alternative claims for investment resources. (2)

This type of evaluation may be assisted by knowledge of the experience of other countries and it is the purpose of this paper to examine some of this experience. The cases of Australia and South Africa have been selected. Both have successfully developed domestic steel industries and, although they have probably been more favorably endowed with coal and iron ore than many of the countries seeking to develop steel industries today, their experience does illustrate some of the general problems that arise with steel development under any conditions.

*The views expressed in this paper do not necessarily represent the official views of the International Bank for Reconstruction and Development.

- (1) 100,000 tons is quite a small output for a steel industry. Most of the world's steel comes from individual mills of much greater capacity, e.g., 70% of America's steel is produced in 35 mills each of which has a capacity exceeding 1,000,000 tons.
- (2) Greater variety of conditions might be observed if similar analyses were made of such countries as India, Brazil, and Southern Rhodesia.

Since these cases are somewhat limited in their scope, the discussion of them has been supplemented by a general discussion of costs and processes in order to make the analysis more relevant to the wide range of conditions that may occur in underdeveloped countries.

In Section I the development of the Australian steel industry will be described and briefly analyzed in terms of the fundamental conditions contributing to its success. In Section II the South African industry will be treated in a similar manner. Section III is a general discussion of costs and processes and criteria in which the examples of Australia and South Africa will be used to illustrate certain relevant points. In Section IV some general conclusions are presented.

I. THE DEVELOPMENT OF THE AUSTRALIAN STEEL INDUSTRY (3)

A. The History of the Industry

Although the Australian steel industry now produces the world's cheapest steel, its early struggles showed little promise of its future success. The first blast furnace was built in 1848 at Mittagong, (4) 60 miles southwest of Sydney at the site of a small ore deposit. The local coal proved unsuitable for smelting purposes so the furnace had to rely on coke obtained from Newcastle (Australia) at considerable expense. Limestone was brought from some distance and skilled labor was extremely scarce. The plant received no tariff protection and the lure of gold mining during the 1850's discouraged most attempts at manufacturing. Under such conditions local steel was unable to compete with imported products, and only small amounts were produced spasmodically over a period of 38 years under 10 different managements. In 1886 the site was finally abandoned.

In 1875 a second attempt at steelmaking was made at Lithgow, 98 miles northwest of Sydney and, like Mittagong, some distance from the coast. This site was an improvement on Mittagong since it was located on top of a deposit of coking coal. Even with this advantage the mill could not compete with imported pig iron and it soon ceased operating its blast furnace and turned to the rerolling of iron rails for the government railways and the fabrication of various products from scrap. In 1905 a contract to supply the New South Wales Government with its iron and steel needs for seven years stimulated the renewed production of pig iron, but in 1907 the operating firm became financially embarrassed and the mill changed hands. In 1909 a Commonwealth Act for the encouragement of manufactures was passed resulting in generous bounties for iron and steel made from Australian ores, and under these new circumstances the plant was enlarged and modernized. By 1927 it was producing almost 120,000 tons of products a year. However, the inland lo-

(3) Much of the material for this section came from the following sources: Essington Lewis, The Importance of the Iron-Steel Industry to Australia. Adelaide, 1948; Fortune, "The World's Cheapest Steel," Nov. 1950.

(4) On the map in the Appendix, Mittagong is not shown; it would appear very near to Moss Vale.

cation of this mill proved to be a disadvantage because of its relative inaccessibility to important markets and adequate supplies of raw materials. In 1928 the operating firm in combination with several other British and Australian companies formed Australian Iron and Steel, Ltd. and put into operation a new plant at Port Kembla on the coast south of Sydney. The Lithgow plant was subsequently dismantled.

In the meanwhile, other important developments were taking place in this young industry. The Broken Hill Proprietary Co., Ltd., which since 1885 had been extracting great wealth from the silver-lead-zinc ore bodies at Broken Hill, began in 1911 to consider new ways to employ its resources in contemplation of the eventual depletion of its ore deposits. Since iron ore was used as a flux in the smelting of its non-ferrous ores, the Company already had acquired important leases of iron deposits and thus its decision to invest in iron and steel production was not an entirely unrelated step. However, before doing this, a number of important preparatory steps were taken. BHP's general manager visited European and U.S. steel centers to collect information and advice on the best way to proceed. In the U.S. he hired a consulting engineer who came to Australia, wrote an encouraging report on the prospects for making steel there, and recommended Newcastle as the site for the proposed mill. In addition to this, BHP obtained certain concessions from the New South Wales Government, including the dredging of a channel to the plant site, and persuaded the newly created Commonwealth Bank to underwrite a £600,000 bond issue to which it added £500,000 of its own resources. The Newcastle plant commenced operation in 1915 and expanded rapidly during the war years until by 1919 BHP's depreciated investment in plant was more than £5,000,000, financed largely out of silver mine earnings.

Difficult times set in for Australia's young steel producers immediately following the war. With the situation aggravated by high labor costs and high coal prices relative to Great Britain, the industry found itself unable to compete with imports. Tariffs were raised and the subsidy on steel sheets was increased. In 1922, BHP's steel works closed down for 9 months and did not resume operation until coal prices and wages had softened somewhat and anti-dumping duties had been promised on highly competitive products. These duties were imposed in 1924 and the Tariff Board continued to successfully recommend increased protection in 1926, 1928, and 1929. On examining the company's books, the Board concluded that it was the profits from silver mining, shipping and other auxiliary activities that had counteracted the losses from steelmaking to keep the company in the black as much as it was. During this period state governments continued to give BHP freight rebates on the state-owned railways.

By the thirties the storm had been weathered. The 20% devaluation of the Australian pound and the internal downward readjustment of wages under the "premier's Plan" did much to strengthen the competitive position of the steel producers. Australian steel prices dropped below British and U.S. prices by 1936 and have steadily continued to increase their advantage ever since.

In 1935 BHP purchased the controlling shares of Australian Iron and Steel, Ltd., thus bringing all the country's basic steel production under its control. BHP has also followed a policy of extensive integration giving it control of not only its sources of raw materials but also its transportation, the production of much of its steel mill equipment, and markets for much of its basic steel production. Thus, within the parent organization, its subsidiary companies, and associated companies (those in which BHP has less than majority ownership) a vast range of goods and services are produced. A partial list might include coal, ore, refractories, ferro alloys, cement, forgings, steelmill and mining machinery, shipping and shipbuilding, tools, engines, and even aircraft. This represents a far greater degree of integration than is usual at least in the United States.

The company is presently engaged in a vast expansion program which includes the construction of a third integrated steel plant at Whyalla, the enlargement of shipbuilding facilities, the addition of a hot and cold strip mill, and a tinplate plant to the Port Kembla works, improvement of coal mines and development of new ore deposits at Yampi Sound in northwest Australia.

The coming of age of Australia's steel industry is well illustrated by the tables in the Appendix. Table I shows how Australian prices for three basic products have steadily dropped further and further below the levels of United Kingdom and United States prices. In Table IV comparative prices for a range of products are given. Here it should be noted that steel sheet is the only item where Australia shows to a disadvantage and the new mill to be installed at Port Kembla is intended to remedy this situation. Table III traces the course of Australian output through the important years of its development.

B. The Basic Factors

Among the factors considered in analyzing the feasibility of investment in new steelmaking projects, the principal ones are usually the quality, extent and location of the required raw materials, the size and location of the market for steel, and the estimated cost of converting these materials into steel products delivered in the principal markets of the area. Closely associated with these factors are considerations of the size of the proposed operation insofar as it affects costs of production, and examination of the price and availability of imports as a rough indication of the level of costs that might be considered economically justified. In the following paragraphs the development of the Australian industry will be examined in terms of these factors.

1. Raw materials: Australia's ore and coal deposits are extensive, are of excellent quality, and are conveniently located. As can be seen from the accompanying map, the coal is located on the coast in the midst of the most heavily populated area of the country while the ore is but 30 miles from the coast and 1200 sea miles from the coal. When the relative cheapness of

ocean transport is considered, (5) it is evident why the claim has been made that few steel mills in the world can assemble their raw materials more cheaply than those on the Australian coast. It should be noted, however, that Australia's first attempts at steelmaking were not at all well located with respect to the country's ore and coal resources. In early stages of development this is not uncommon. A country's knowledge of its own natural resources is often a product of its economic development.

2. The market for steel: Judging from the apparent consumption of steel in 1913, as shown in Table III, there appears to have been a significant market for steel in Australia prior to World War I. Furthermore, if the types of steel constituting the 787,000 tons of imports are examined, it is found that about 60% consist of such relatively simple products as pig iron, semi-finished steel, bars, rods, angles, rails and wire. These are the kinds of products that are basically the easiest to produce. In addition, much of this market was concentrated along the coastal regions of southeast Australia which made it rather a simple matter for steel production to be optimally located with respect to both raw materials and markets.

In spite of these advantageous factors, it was not possible for the new steel producers to compete with imported products and they grew up under (first) the protection afforded by World War I when no imports were available, and (later) the tariffs imposed during the 20's.

Through the years the domestic consumption of Australian steel products has increased steadily both at the expense of imports and because of a general expansion of consumption. Australian industrial development has been said to date from the establishment of the steel industry. There is no doubt that in this case the existence of a domestic supply of steel plus the emergency demands for manufactured goods during World War I were major factors in initiating the extensive industrial development that has occurred since 1915. The development of the industry has itself done much to create and enlarge its own market. This is quite evident when the industry is considered both as a producer of steel and as a manifestation of the Australian government's active interest in encouraging industrial growth.

3. Cost of production: The cost of producing Australian steel was for many years, roughly from 1915 to about 1932, significantly higher than that of imported steel. Although it appears to have been the intention of the BHP to produce steel competitive with imports, it required many years to achieve this goal. The contributions made by the Australian devaluation and the general reduction of wages throughout the economy in the early thirties have already been mentioned. The beneficial effects of these actions were shared by the steel producers along with the rest of Australian industry. The company itself also made very important direct contributions.

(5) Rail transport of ore and coal has been estimated to be generally more than 10 times as expensive as sea transport. World Iron Ore Resources and Their Utilization, UN, 1950.

Through constant contact with the latest developments in steel-making technology, supplemented by a determined policy of replacing obsolete plant and a far sighted program of staff training, the industry steadily increased its operating efficiency. Another contributing factor was the unusual degree of integration of the company's operations, which included the production of all the country's basic steel and which extended practically from mine to consumer. This increased efficiency by eliminating dependency on outside sources of supply that might prove uncertain and at times costly, and by facilitating a more steady rate of steel mill operation which is an important cost saving factor in an industry with such high fixed costs.

Thus, even though the mills themselves were not particularly large when their costs first became competitive with United Kingdom and United States prices, (6) BHP was able to gain some "economies of scale" from the very size of its over-all operations.

II. THE DEVELOPMENT OF STEEL PRODUCTION IN SOUTH AFRICA (7)

A. The Growth of the Industry

Whereas one might say that the Australian steel industry was established in 1915 when BHP opened its Newcastle plant, the corresponding stage in the South African industry was not reached until 1934 when the ISCOR plant at Pretoria commenced operations. And, as in the Australian case, a considerable amount of experience had been acquired before this time.

The first attempt to produce steel was made as early as 1860. It was unsuccessful as were a number of other attempts made around the turn of the century. The principal causes of these failures were:

1. Lack of technical knowledge and practical experience in methods of production.
2. Insufficient knowledge of raw material resources.
3. Small size of the market.
4. Lack of thorough prior investigation.
5. Inadequate capital.

In 1910 the Transvaal Government became actively interested in promoting domestic steel production and hired a British expert to report on the feasibility of establishing a local steel works. On his advice the first steps taken were to promote production of steel from scrap only, as the market was considered too small to justify integrated operation. He also advocated systematic prospecting of resources since he felt the current knowledge was also an inadequate basis for any sizable investment in steelmaking facilities.

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- (6) The total output of both mills was between 600,000 and 800,000 tons a year. Since then (the early thirties) capacity has been continually increased until today the capacity of the Newcastle plant is about 1,200,000 tons, while that of Port Kembla is about 750,000 tons with extensions under way to greatly increase its capacity.

After the formation of the Union in 1910, the encouragement to local production was taken over by the Union Government. By 1920 there were a number of firms producing small amounts of steel, chiefly from scrap, and supplying about 10% of the Union's requirements. By this time blast furnace smelting of local ores had also been carried out successfully and several firms were seeking large amounts of capital to finance the construction of integrated steel works. But the 1920's were not a propitious time to raise capital for new steel mills. The world steel industry was depressed, steel prices were falling, the European capital market was tight, and there was no South African equivalent of the BHP with the interest and resources to finance the venture locally. In addition to this, attempts to consolidate the plans of the local producers were not successful and investors were generally skeptical of the prospects for several separate integrated steel works.

A series of unsuccessful negotiations for private capital were finally terminated in 1928 when in the face of considerable opposition, the government took matters directly (8) into its own hands and established the South African Iron and Steel Industrial Corporation, Ltd. (ISCOR), a state-controlled operation to undertake large scale iron and steel production.

ISCOR built a plant at Pretoria with a capacity of 200,000 tons of ingots a year. It started operating in 1934. In 1938 the capacity was raised to 300,000 tons and by 1949 it had reached 630,000 tons. Just prior to World War II, plans were made to construct a second integrated plant of 335,000 ingot ton capacity at Vanderbijl Park near Vereeniging. This plant, which is now nearing completion, will have a semi-continuous strip mill which will eventually produce ISCOR's entire output of flat rolled products. The plant is designed to allow for an expansion of capacity up to 1,000,000 ingot tons a year.

In a similar but more limited way to BHP, ISCOR has financial interests in a number of closely allied operations. These include plants producing special steel and alloys, and heavy engineering, industrial and mining equipment.

B. Supply and Market Conditions

1. Raw materials: Like Australia, South Africa is favored with extensive resources of high quality ore and coal which are conveniently located with respect to each other and the principal market area. The Pretoria mill obtains most of its coal from 70 miles away, its ore from 160 miles distant; it is located

(7) Much of the material for this section came from the following sources: (1) C. S. Richards, The Iron and Steel Industry in South Africa, Witwatersrand U. Press, 1940; (2) Annual Reports of the South African Iron and Steel Industrial Corporation, Ltd. (ISCOR).

(8) Prior to this time, government assistance had been confined to such actions as selling scrap from the government operated railroads at preferential rates and agreeing to purchase a certain percentage of railroad requirements from local producers, etc.

about 30 miles from the principal consuming centers in the Witwatersrand area. The new mill must haul its coal 40 miles further and its ore 75 miles further, but it will be closer to the new Free State gold field which is becoming an important market area. The principal reason for placing this plant in a new apparently less advantageous location is that the shortage of water limited expansion of facilities at Pretoria.

2. The market for steel: As can be seen from Table III in the Appendix, South Africa was consuming an average of over 500,000 tons of steel a year by the time the Pretoria plant was built and the great bulk of this amount was imported. In 1929 about 65% of the steel imports consisted of such relatively simple products as pig iron, semi-finished steel, bars, rods, rails and wire. This market was concentrated largely in the Witwatersrand gold mining area in Southern Transvaal which is 350 miles from the nearest sea port (located in Portuguese East Africa). The market is considerably farther from the important South African ports and coastal industrial areas. It was also highly concentrated as to the type of consumer, with the gold mines and ancillary industries taking about 90% of ISCOR's production in the prewar years, the bulk of the remainder going to the railroads.

The output of South African industry has never caught up with the demand for steel in the Union. The great gold mining boom, which followed the increase in the dollar price of gold, set in about the time the Pretoria mill came into operation, and accounted for the bulk of the increase in steel consumption in the late 30's that is shown in Table III. It was followed closely by the emergency demands of World War II and in the post-war period by the general increasing industrialization nurtured by the war, and by the opening up of the new gold field in the Orange Free State. Thus, the development of ISCOR itself has not been as important a factor in enlarging the Union's steel market as was the development of BHP's steel operations in Australia. With increasing general industrial development, ISCOR's role will probably become more active in this respect.

3. Cost of production: Although the men who planned the original Pretoria mill estimated that its costs would be as low as the lowest in Europe, and although ISCOR's chairman repeatedly stated that the plant would need only the natural protection afforded by its inland location, the corporation pressed for anti-dumping duties soon after commencing operation in spite of the fact that the price of imported steel delivered in Johannesburg was considerably above estimates of ISCOR's cost of operation. Duties were imposed from time to time from 1934 to 1936, and in the latter year ISCOR entered into an agreement with the International Steel Cartel and the British Iron and Steel Federation which effectively reserved one-third of the South African market for ISCOR and set minimum c.i.f. prices on all imported steel. These actions had the effect of raising steel prices in the Union and eliminating foreign competition. Soon afterwards ISCOR commenced to make considerable profits and declared substantial dividends.

ISCOR's actual costs of production are not available but it is known that labor costs were unusually high, particularly in the early years of operation. In 1939 it was estimated that

they represented 42% of total costs. This may be compared with figures of 25% and 30% for the United States and the United Kingdom during this period. The high South African labor costs seem to stem in large part from the success of the small and highly organized European labor force in keeping native labor out of the mills.

Thus, it is probably true that ISCOR's costs were high during its early operations for in addition to the problem of expensive and untrained labor, the corporation had all the difficulties inherent in starting up a full scale steel mill and forming a new organization at the same time. It appears, however, that ISCOR's cost position did improve with time and, in fact, its pricing policies, especially during the period of the cartel agreement, have been criticized as not taking this fact into account. The complaint was made that ISCOR was not pricing its product as low as the decreased costs would justify, especially in view of the fact that it was a public corporation.

Since 1939, when the cartel agreement was terminated, ISCOR's policies seem to have been more in the public interest. Its postwar prices have generally increased much less than the prices of imported steel, so that today ISCOR appears well able to compete with imported steel over a wide range of products, particularly in the Union's interior markets. As in the case of the Australian industry, its competitive position is strongest in the crudest products.

III. COSTS AND PROCESSES

Any attempt to draw useful conclusions from the above cases is limited by the nature of the cases themselves. Although both illustrate some of the typical problems that may be encountered by new steel industries under a great variety of circumstances, these particular countries were blessed with natural advantages that are probably extremely rare in parts of the world that do not as yet have their own steel production. It does not necessarily follow, however, that without such advantages steel projects must be categorically condemned. The Australian and South African cases are examples of the successful development of fully integrated steel operations using traditional U.S. and European techniques. Possibilities may still exist for the development of non-integrated production or of production using different technology. These will be discussed below in Sections B and C. The following section will deal with the general aspects of the development of steel production in underdeveloped countries with particular reference to integrated mills using traditional practices.

A. Large-scale Operations

1. Limitations of comparative costs as a criterion. From the above examples it is quite evident that one cannot say simply that because the price of imported steel is below the proposed costs of operation that a project is "uneconomic." Since we are dealing with a problem of development our criterion must take into account changes that may occur over time.

Costs do change over time and with an operation as complex as a steel mill, reductions should be expected as labor

becomes trained, operating practice established, and as the size of the units increase. This occurred in both Australia and South Africa. This type of cost reduction is due to the increasing efficiency of the mill. It is essentially a matter of internal economies. Costs may also change because of factors completely divorced from the mill itself and these factors may have a decisive influence upon whether the infant industry does or does not "grow up." Thus, a general increase in the internal wage level can completely overwhelm the beneficial effects of increased operating efficiency. This was the case in the Australian industry in the early 1920's when the Australian wages rose by a far greater extent than those in the U. K., the dominion's chief source of imported steel. On the other hand, the devaluation and general wage reduction of the early 30's had a crucial effect in lowering Australian prices below those of the U. K. and the U.S. Even though through all this the general decline of Australian steel prices indicated a continual increase in operating efficiency, it was these events external to the industry that had the dramatic effect.

Just as costs of production may change absolutely and in relation to costs of imports, so the availability of imports may change. Nothing can appear to justify local steel production so quickly as the complete embargo on imports imposed by war conditions. In considering the price of imported steel for comparative purposes, one must be careful to consider the amount freely available at that price. The problem of considering availability of imports can become a highly speculative one, but still in any consideration of prospects for development some assumptions must be made. In this case it would seem that an element of uncertainty as to future availabilities should be enough to justify a premium in favor of local production.

Of course in a real sense the application of comparative cost criteria consists of considerably more than the simple comparison of local and import prices. It should include both a comparison of relative costs for a variety of investments within the producing country (the problem of evaluating alternative investments which has been mentioned previously) and some consideration of the change of costs of production over time (the infant industry argument). The above discussion has tried to bring out the importance of this second aspect.

2. Cost components in steelmaking. Steel can be produced economically under a variety of conditions related to the quality and location of raw materials, the size and location of the market, the size of the mill, and the type of product produced. The interrelationship of these factors is difficult to state with any precision. However, even a cursory glance at the chief elements of cost will give some idea of the way in which disadvantage with respect to some factors can be counteracted by advantages with respect to others.

The traditional method of steelmaking can be conveniently divided into three stages: smelting the ore in the blast furnace to produce pig iron, refining the pig iron in open hearth or bessemer furnaces to produce steel, and rolling the steel into useful shapes. It is helpful to classify costs as assembly costs--the cost of assembling the raw materials, and con-

version costs--the costs of converting raw materials into various iron and steel products.

Assembly costs are a very important factor in steelmaking because of the bulk of the materials required (generally it requires 3 to 4 tons of coal, ore and limestone to produce one ton of steel) and because the principal raw materials, ore and coal, occur in separate deposits which are rarely located near one another. Assembly costs depend upon the quality of the materials, the costs of mining them and the costs of transporting them to the plant site. In both Europe and the United States it is generally found that the cost of raw materials assembled at the plant constitutes between 80 and 85% of the costs of producing pig iron. In United States practice about one-half of this cost is for transportation, whereas in Europe transportation costs are less but the costs of mining are higher. In both Australia and South Africa assembly costs are relatively low. In the Australian case this is reflected by the fact that the industry's greatest price advantage lies in pig iron (Table II).

The conversion costs in the production of pig iron are a minor element of total costs. In Europe and the U. S. they represent from 15 to 20% of total costs with from 4 to 9% of this being labor costs.

As the process of steelmaking proceeds, conversion costs naturally increase until in the finished steel they may represent from 45 to 65% of total costs, as in the case of United States and United Kingdom practices. Conversion costs are sensitive to many factors, the most important of which are the type of products, the level of operation, the mixture of products, and the size of the mill.

Conversion costs naturally increase with the degree of fabrication and in an industry which has a high proportion of fixed costs the diseconomies of low level operation are apparent. The factors of product mix and size of mill are rather more complicated. The importance of these factors can be seen when one considers the cost and capacity of certain items of steelmaking equipment. The blooming mill may serve as an example. It is the mill that reduces the steel ingots as cast from the refining furnaces to a size from which they may be rolled into bars, plates, rails, rods, sheets or other shapes. Blooming mills are massive and costly, and in plants without continuous strip mills they are often the largest indivisible unit. (9) Thus, in ISCOR's Pretoria plant there is a single blooming mill with a capacity of 600,000 tons a year, equal to that of the entire plant, and each of the Australian plants has a similar mill, though in all cases the plants have several blast furnaces and refining furnaces. Other similar items of equipment are mills for rolling heavy sections and sheet. For example, the modern continuous sheet mill is the most expensive

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- (9) There is a considerable flexibility in the size of the blooming mill itself and it may even be eliminated by changing practice so as to pour small ingots which may be rolled directly (as will be shown below). However, there are economies in the use of this type of mill and they can only be realized fully at certain minimum levels of capacity.

part of a steel plant (10) and requires a plant capacity of well over 1,000,000 ingot tons a year to keep it in full operation.

To operate such large scale equipment at optimum cost levels requires not only plants of large capacity but also, in the case of large units of finishing equipment, a sufficient demand for the particular types of products that the equipment produces. The output of a wide variety of products may be handled more efficiently in a large plant when there is sufficient demand to operate a variety of finishing equipment at high rates of output. A small mill faced with a similar demand must adopt more flexible methods of production to eliminate the cost of large amounts of specialized standby equipment which could never be used at anywhere near capacity. Such methods are usually less efficient, and in addition the cost incurred in changing rolls as production is shifted from one product to another will also tend to increase conversion costs.

Thus, it appears that a necessary condition for economical steel operations in countries with small and underdeveloped markets would be low cost of assembling steelmaking materials, for certainly if an advantage is not gained here there is little opportunity to do so in the subsequent processes of production. However, there is still one further factor that is relevant. This is the more or less special case of the large interior market. The difficulty of importing steel into such a market as the Rand area in South Africa (11) gives the local industry an advantage, some of which it may be able to dissipate in the form of normal or even high assembly costs without imperilling its economic justification. (12)

Another and rather obvious point is that a local industry should give very careful consideration to its range of products especially in the early stages of development. Although this is a very difficult point to be precise about, the indications are that increasing the range of products has a direct effect in increasing costs. Of course, such an assertion must be tempered by considerations of the types of products and the means of producing them.

In addition to operating costs, special mention should be made of capital costs. These appear in operating costs as depreciation but, more important, they represent a hurdle which must be passed before operating costs can become more than of academic interest. U.S. steelmakers have complained that the cost of steel mills has risen since prewar by a greater amount proportionately than the price of steel. Integrated mills are today estimated to cost from \$200 to \$300 per ton of annual in-

(10) Estimated cost of over \$25 million in U. S.

(11) In 1937 the railway and freight charges on imported steel delivered in the Rand area amounted to approximately 100% of the f.o.b. prices of many imported items.

(12) The Australian industry also enjoys considerable natural protection, but considering the relative costs of transport by sea and rail plus the cost of trans-shipment at the South African Coast, this amount is undoubtedly much less.

got capacity in the U.S. The cost of building such mills abroad is even higher chiefly because of the additional cost of transporting the equipment. But actually the cost of setting up a mill capable of operating is much greater than this if community facilities must be provided for the employees, as is often the case in projects in underdeveloped countries, or if additional investment is required in mining or transport facilities, etc. This indeed is a considerable hurdle and it shows why the careful justification of such investment is so important.

3. Some characteristics of steel markets in underdeveloped countries. A large proportion of the steel consumed in underdeveloped countries is in the forms that do not require further processing such as concrete reinforcing bars, wire, rails, structural shapes, corrugated sheets and tubes. Some of these forms are also relatively simple to produce. These factors are favorable to local production. The chief unfavorable factor is the typically small size of such markets. However, there is some compensation in the potential for expansion which is also typical of steel markets in many underdeveloped countries. The demand for steel is very sensitive to the progress of development. It tends to keep pace with the advancing levels of income. In the case of crude products, such as those mentioned above, the expansion may be quite rapid because of the need of these products in basic developmental activities and because their use does not depend upon the existence of extensive facilities for further processing.

4. Organizational requirements. Considerations of general economic factors should not be allowed to obscure the extreme importance of the way in which a steel project is organized and carried out. The large amount of investment in highly specialized fixed plant that is required justifies extreme care, particularly in the planning stage. The danger of a false start and wasted investment are very real even in cases where the basis for sound steel development exists, as illustrated by the abortive attempts to establish steel production in Australia at Mittagong and Lithgow. The importance of a thorough survey of ore and coal resources cannot be overestimated. This factor itself may be a considerable deterrent to early development of steel production.

In addition to astute planning, one should add efficient management and technical progressiveness. Certainly this sounds ideal but it may not be impossible. BHP appears to have set such a standard in many respects. The technical aspect should be emphasized particularly because conditions of production differ from country to country and successful operations must adapt to the local environment. For example, BHP has continually kept abreast of worldwide progress in steelmaking technology and has adapted for its own use such developments as have been suited to its own particular problems. The indiscriminate import of technology may not be adequate to achieve the best results.

Financial strength is certainly another requirement. Our cases indicate that a large amount of capital expended over a considerable space of time is necessary to achieve successful steel operations.

B. Small-scale production

In the preceding section the argument was presented in terms of integrated steel production of the type set up at Newcastle, Port Kembla and Pretoria. The requirements for successful operation of such projects were seen to be fairly exacting. If, however, operations of a smaller and less comprehensive nature are considered the problem of economic justification becomes much more simple. Within this category we may consider rerolling operations, small mills producing steel from scrap, and merchant blast furnaces--furnaces which sell their product on the open market and are not organically associated with any steelmaking capacity.

Rerolling operations are the simplest of steelmaking operations and are generally the first to appear in underdeveloped countries. They consist simply of facilities for heating semi-finished steel shapes--such as slabs or billets--and some type of mill for rolling these shapes into such finished forms as rods or light structural shapes. Such operations involve relatively small capital expenditure and are a typical first stage in the evolution of steel production. For example, rerolling mills now exist in Pakistan and Israel and the early operations in Australia and South Africa were of this type.

It is an easy step to proceed from the rerolling operations to the actual production of steel from scrap. Open hearth furnaces fired by gas, or oil, or electric furnaces, together with facilities for pouring ingots must simply be added to the former operation. This is the type of operation which persisted for many years during the early stages of the Australian and South African developments. Its principal requirement is an adequate supply of scrap or pig iron. In many ways it is a very desirable first step towards larger scale steel production. Economical units may be relatively small and inexpensive and the development of local production is itself of importance in preparing a market for the future production of steel on a larger scale. Thus, fabrication is commenced in the country and outlets for local production are set up. However, shortage of local scrap may limit the development of such operations, although under favorable circumstances imported scrap and pig iron might prove to be an adequate substitute. Of course, as a country's industry develops and as its consumption of steel increases, its production of scrap increases. Thus we find the paradoxical situation that this type of non-integrated steel production, which seems in many ways ideally suited to the early stages of the industry's development, is today gaining an increasing popularity in the U.S. where over one-half of the world's steel is produced. It has been stated that under conditions where power and scrap and a good market are all available, a mill can be built to produce 100,000 tons per year of light products competitively with large fully integrated plants. And furthermore, the cost of such a mill will be from \$50 to \$60 per ton of annual capacity as against today's capital costs for an integrated mill of from \$200 to \$300 per ton.

The development of this type of mill on an economical basis has depended upon recent advances in electric furnace practice and in specially designed fast mills that are able to roll billets poured directly from the melting furnaces quickly

enough to eliminate the need for any reheating facilities. In the U.S. this development has been spurred by the increasing level of freight rates, by the shift of the industry from a basing point system of pricing to an f.o.b. mill pricing system which gives advantages to mills producing for local markets, and by the increasing capital costs of integrated mills.

This development seems of special interest to underdeveloped countries, for even if production from scrap is not feasible the techniques of casting and fabricating efficiently on a small scale would certainly be readily adaptable in the production of light products.

Merchant blast furnaces are a different matter. Their success depends chiefly upon low cost of assembling raw materials under conditions where production for local foundries or for export is more attractive than establishment of integrated steel works. A notable example of this type of development occurred in India, which was the world's largest exporter of pig iron in the 1930's.

C. New Techniques

The preceding discussion has been confined to traditional methods of steelmaking that require ore and coking coal, or to methods that may be applied on a relatively small scale by using scrap. There may be cases, however, where countries have good ore but inadequate coking coal and insufficient scrap. In these cases certain modern developments in ore smelting may be relevant.

These developments, which originated in Scandinavia, have been in the direction of reducing the need for coking coal. Typical examples are the Tysland-Hole electric smelting process and the Wiberg-Soderfors sponge iron process. Essentially they are based on the fact that the blast furnace uses large quantities of high grade coke to perform three functions, two of which may be performed by other means, and one of which may even be eliminated under certain conditions. Thus, while the coke in the blast furnace serves to heat the charge, reduce the ore to metallic iron and melt the iron, in the electric smelting process electricity is used for heating and melting; and in the sponge iron process the product is simply not melted at all but appears in the form of a spongy mass of iron particles which can be used in subsequent refining operations in the same way as pig iron or scrap are used.

The quid pro quo for the reduced coke consumption is, to an extent depending on the process, the use of considerable electric power and the need for high quality ore. Also, although there is a fair amount of accumulated experience in the use of these methods, they are still in the process of development and have to be adapted for use with different ores. However, they do deserve careful consideration by any country interested in developing indigenous steel productions under conditions where coking coal is not readily available or where the prospective market is not extensive.

A summary view of the possibilities of these processes is best indicated by Table IV in the Appendix, which compares their

operating costs and capital costs with those for a blast furnace. The table indicates that under conditions existent in Canada, where these data were gathered, the direct production costs for the blast furnace are the lowest. However, when charges for amortization and interest are included, the differential is considerably narrowed and the fact that a much smaller initial investment is required for the alternative processes, coupled with their reduced requirements for coke, are factors of more practical importance to many potential steel producing areas.

These examples are representative of a number of alternative processes that exist or are being developed for smelting iron ore. They are not intended to compete with blast furnaces but rather to operate under conditions where blast furnace operation would be particularly expensive. The new techniques appear to be best suited for small-scale operations, and are one more stage in the adaptation of steelmaking to a range of conditions.

IV. CONCLUDING REMARKS

The central problem of this paper has been to investigate the conditions under which investment in steelmaking facilities is justified in underdeveloped countries. The analysis has disclosed that there are no neat and simple answers to this question. Cost criteria may be considered basic to any evaluation but a simple comparison of anticipated costs of operation and prices of imports is not in itself sufficient. Expected future conditions should be an important part of any analysis. The costs of production most probably will change, and the supply of future steel imports may be quite uncertain. The cases examined showed that infant steel industries even if established on a sound basis of raw material supply and market demand may still be high cost producers during the early stages of operation. The supply of steel available from foreign producers may vary from conditions of complete embargo, as during wartime, to conditions of glut, as during the 1920's when steel was dumped on many export markets.

Considering cost criteria in this context, the analysis of the justification of investment in steelmaking facilities is most appropriately made on two levels. On a general level the concern is with the relationship of the project to the rest of the economy. This can become quite a complicated matter. One fairly simple example may be given. A mill that is successful in producing steel most probably will lead to further investment in fabricating facilities and in fact the full justification of a steel project may depend in a very real way upon this subsequent investment. (13) If there are expected to be any unusual restrictions on this complementary type of investment, these should be considered when the initial project is analyzed. This is very similar to the more general problem of assessing the prospects for the general industrial development of a country.

(13) This effect will, of course, vary with the facilities that already exist and with the size of the steel project.

On a specific level, the problem is to determine how well the project is adapted to the local conditions. Under some circumstances only simple rerolling operations may be feasible; in other cases a basis for extensive development may exist. As has been shown there is a considerable degree of flexibility as to the combination of conditions that will give an economical level of costs. Disadvantages in some respects can be compensated by advantages in other respects. It does appear, however, that low costs of assembling raw materials are particularly important for new steel developments, for unless an advantage is gained here there is little opportunity to compensate for the disadvantages that are inherent in the subsequent operations of a small plant. In cases where the market is naturally protected by unusually high transport costs on imported products, low assembly costs may be of less vital importance.

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A P P E N D I X

TABLE I

PRICES, IN AUSTRALIAN POUNDS PER LONG TON, FOR PIG IRON, MERCHANT BARS, AND STRUCTURAL STEEL IN AUSTRALIA, UNITED KINGDOM, AND THE UNITED STATES*

Year	Pig Iron			Merchant Bars			Structural Steel				
	Aust.	UK	US	Year	Aust.	UK	US	Year	Aust.	UK	US
1930	6.70	3.34	--	1930	13.00	8.00	--	1930	13.00	7.60	--
1936	4.25	5.04	4.73	1936	9.65	10.80	10.40	1936	9.65	10.38	10.12
1937	4.25	7.36	5.92	1937	9.65	14.40	13.98	1937	9.65	14.10	12.84
1938	4.50	8.00	6.38	1938	10.13	14.31	13.89	1938	10.13	13.78	12.76
1939	4.50	7.23	5.54	1939	10.13	13.70	12.94	1939	10.13	13.00	12.63
1940	4.50	7.87	7.07	1940	10.13	18.20	15.05	1940	10.13	17.10	14.71
1941	4.50	8.35	7.38	1941-2	10.13	21.20	15.05	1941-2	10.13	18.30	14.71
1942	4.50	8.34	7.38								
1943-4	5.75	8.35	7.38	1943-5	12.63	21.20	15.05	1943-5	12.63	18.30	14.71
1945	5.75	9.29	7.70								
1946	5.75	10.53	8.26	1946	12.63	22.10	15.75	1946	12.63	19.35	14.70
1947	6.75	10.88	9.77	1947	14.13	22.69	18.20	1947	14.13	19.66	16.45
1948	6.75	12.13	11.69	1948	14.13	24.38	20.30	1948	14.13	21.13	19.60
1949	7.88	14.78	14.53	1949	15.88	24.88	23.45	1949	15.88	25.22	22.75
1950	9.88	15.03	20.76	1950	17.88	25.22	34.00	1950	17.88	25.22	34.00

*Australian prices c.i.f. state capital ports; UK prices delivered at consumers' works; US prices f.o.b. basing point.

SOURCE: Australian Tariff Board.

TABLE II

STEEL PRICES AS OF JULY 1950
(In U.S. dollars per long ton)

	<u>Australia</u>	<u>United Kingdom</u>	<u>United States</u>
Founding pig iron	22.10	33.65	46.50
Structural steel	38.90	56.50	76.15
Merchant bars	38.90	62.45	77.30
Plates	41.15	58.05	78.40
Re-rolling billets	35.80	47.10	59.35
Wire rods	41.35	59.10	86.25
Enameling sheet	129.90	89.75	98.55

SOURCE: Fortune, November 1950.

TABLE III

AUSTRALIAN AND SOUTH AFRICAN PRODUCTION, NET IMPORTS
AND APPARENT CONSUMPTION OF CRUDE STEEL
(In thousands of Metric Tons)

Year	Production of Crude Steel		Net Imports of Finished and Semi-Finished Steel Products: in Ingot Tons		Apparent Con- sumption of Crude Steel	
	Aust.	S.Afr. ^a	Aust.	S.Afr.	Aust.	S.Afr.
1913	13	---	787	334	800	---
1914	23	---	---	---	---	---
1920	263	---	273	---	536	---
1922	72	---	298	---	370	---
1924	366	28 ^b	549	386	915	414
1926	380	39 ^b	538	524	918	563
1928	412	32 ^b	668	629	1,080	661
1930	320	40 ^b	481	541	801	581
1932	225	43 ^b	108	253	333	296
1934	527	11 ^b	136	529	663	540
1936	834	325	192	667	1,026	992
1938	1,210	370	216	652	1,426	1,022
1940	1,038	363	-301	465	1,007	828
1942	1,727	346	73	170	1,800	516
1944	1,618	484	141	153	1,759	637
1946	1,020	530	---	---	---	---
1948	1,176 ^a	630	---	---	---	---

a. Estimated.

b. Figures represent only 77% or more of total production.

--- Not available.

SOURCE: European Steel Trends in the Setting of the
World Market, ECE, 1949.

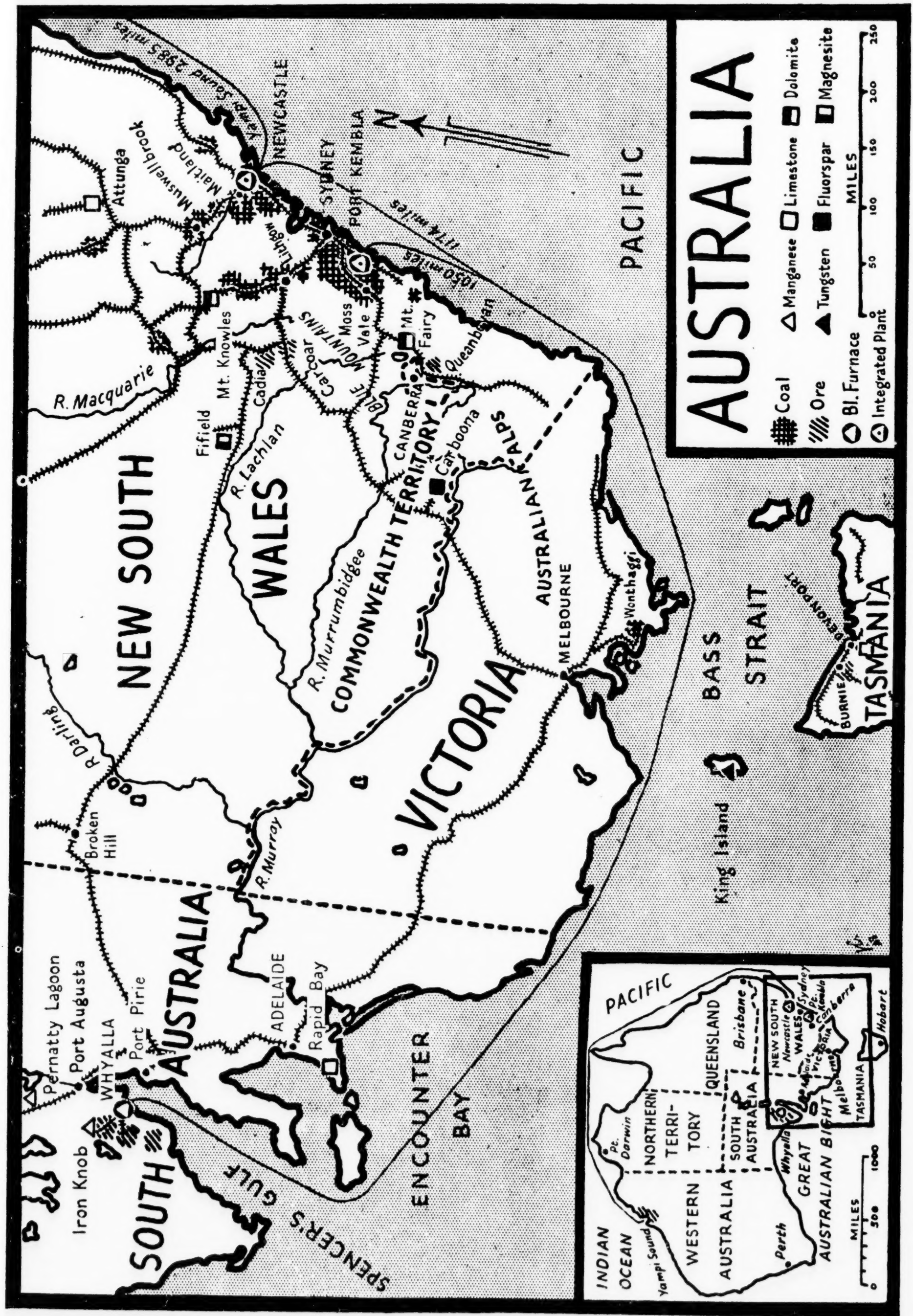
TABLE IV

PRODUCTION COSTS AND INVESTMENT REQUIREMENTS OF THE
STANDARD BLAST FURNACE, ELECTRIC SMELTING FURNACE
AND SPONGE IRON FURNACE^a

<u>Item</u>	<u>Blast Furnace</u>	<u>Electric Smelting Furnace</u>	<u>Sponge Iron Furnace</u>
<u>Plant and Furnace Capacity:</u>			
Total yearly output (tons)	280,000	110,000	45,000
Number of furnaces	1	3	2
Daily output per furnace (tons)	800	100	64
<u>Production Costs per Ton of Iron (dollars)^b</u>			
Coke	9.35	5.12	3.60
Ore	14.50	14.50	20.75 ^c
Limestone	0.97	0.88	0.09
Electrodes	..	1.80	0.40
Power (0.3 cents per kwh)	..	7.50	2.70
Cooling water	0.42	0.33	0.06
Labor at \$1.20 per hour	0.94	2.19	2.52
Repairs, maintenance, overhead and miscellaneous (including casting)	4.15	4.75	4.90
Production cost	30.33	37.07	35.02
Gas credit at 25¢ per million BTU	1.90	1.75	..
Net production cost	28.43	35.32	35.02
<u>Total Investment (thousands of Dollars)^d</u>			
Total	28,000	9,750	3,000
<u>Investment per Ton-Year (dollars)</u>			
Total	100	89	67

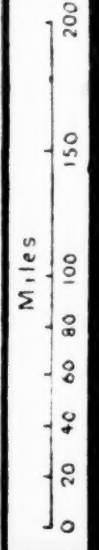
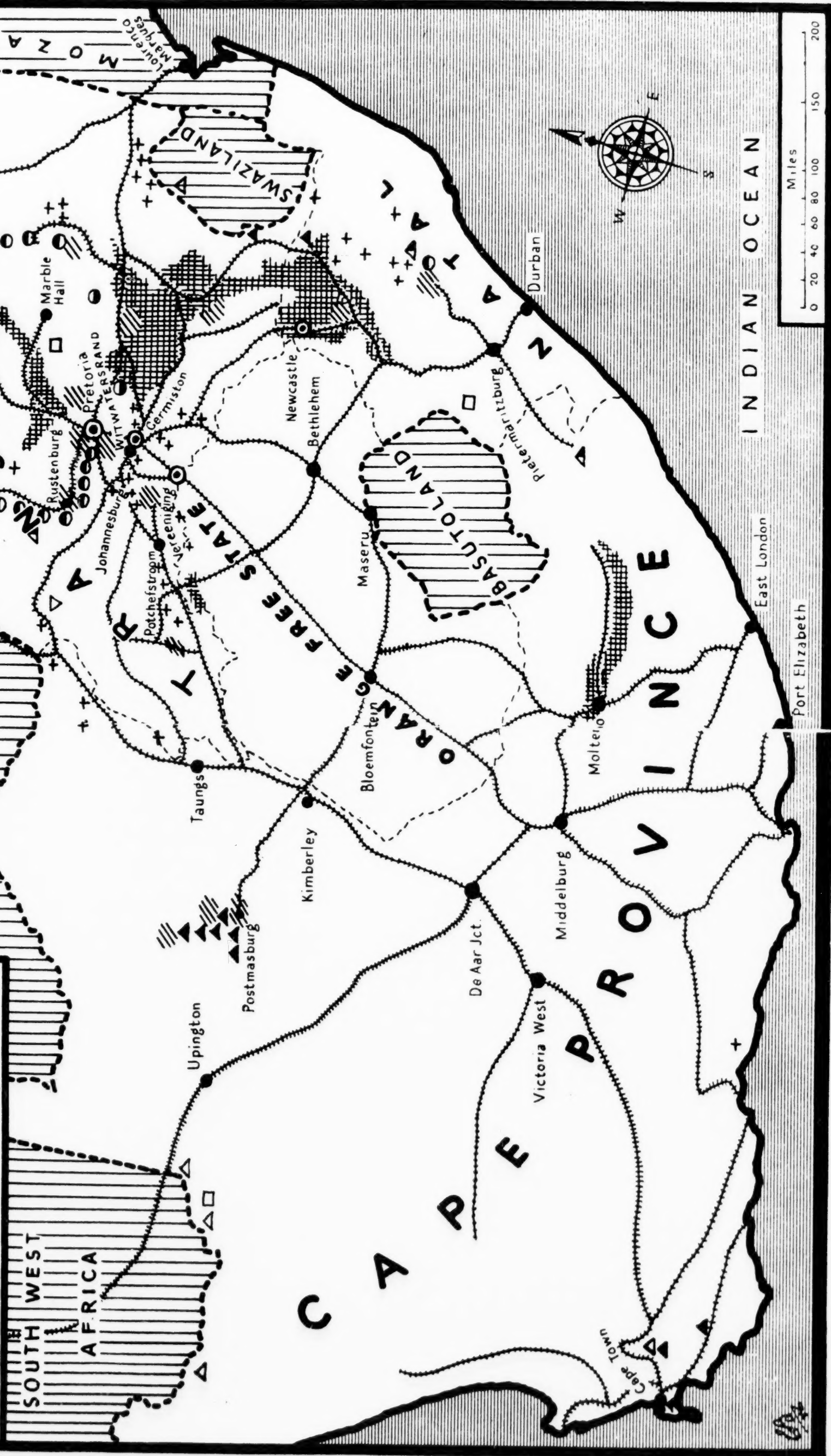
- a. Tysland-Hole electric smelting furnace and Wiberg-Soderfors iron furnace.
- b. Production cost estimates based on typical operating conditions, reflecting 1948 cost of production factors in Canada. Production costs do not include profits or fixed charges on investment.
- c. Higher grade ore required than in case of other processes.
- d. Investment costs are not intended to be exact nor to apply to any particular location. They are representative costs in Canada in 1948 and are intended only for purposes of comparison.

SOURCE: World Iron Ore Resources and Their Utilization,
UN, 1950.



UNION OF SOUTH AFRICA

- | | | |
|------------|-----------------------|--------------|
| ## Coal | /// Iron-Ore | □ Molybdenum |
| △ Tungsten | ▽ Vanadium | ▲ Nickel |
| ○ Chromium | ● Cobalt | ▲ Manganese |
| + Gold | ⊙ Iron & Steel Plants | — Rail Lines |



TAIWAN: A RESOURCE ANALYSIS OF AN ORIENTAL SOCIETY*

II RESOURCE BASE AND INDUSTRIAL DEVELOPMENT

Taiwan, as befits its history as the situs of an agrarian Oriental society, exhibited relatively little evidence of industrial development until recent times, and then only along limited and specialized lines. The explanations for this phenomenon are several. On the one hand, it suited Japan's purposes to have Taiwan a basic food supplier within the Imperial system. This was true up to the beginning of the China war without reservation, although there then followed a program of limited industrialization which will be discussed below. On the other hand, the island offers relatively few natural resources which can be turned easily toward rapid industrialization. What is the basic resource structure of Taiwan and its relation to modern industrial development?

The Resource Base

Agricultural resources of industrial significance are few, (36) not because the island is incapable of raising crops of this nature, but because increases in acreages of these crops must take place largely at the expense of food crops already occupying both economically productive and marginal lands. During the Japanese occupation, however, considerable emphasis was placed on the raising of fiber crops such as ramie, jute, and hemp, each of which occupied not inconsiderable acreages, and the island supplied Japan with a small but significant percentage of its industrial hard fiber requirements. (37) Some cotton also was raised, and of course silk as a subsidiary income source for the food-growing farmer. In each of these cases production since the end of the war has fallen to negligible quantities, partly because of the passing of Japan as a convenient market for them; partly because of the greater security and higher prices to be gained by raising food crops, which could be sold at high prices or held for family use until a day of need. It is unlikely that without a revolution in the agricultural organization of the island industrial crops will become of major importance. This statement does not refer to the planned increase in acreages of soy beans, peanuts, and oil seed crops such as sesame and rape, which will supply the domestic demand for cooking oils and will also contribute to the supply of fertilizers in the form of bean and oil-seed cake.

Forestry resources for building and fuel represent a more substantial potential contribution to industry. More than two-

*This is part two of a two-part article, the first section of which appeared in our last issue.

(36) Except those which are processed as foodstuffs, such as sugar.

(37) About 30 per cent of Japan's requirements in the case of jute.

thirds of the island is under forest or brush cover; 4.5 million acres are in forest alone. (38) Nevertheless, before the war Taiwan imported about half of its lumber from abroad, although lumber also appeared as an important export commodity in the Japan trade. The reasons for this situation are seen first in the nature of the forest cover which consists less of large stands of homogeneous species suitable for mass cutting than of dense sub-tropical forests composed of numerous specimens demanding selective cutting. Most of the species also are hardwoods, and the softwoods most suitable for building construction are limited. A second major factor is the inaccessibility of many of the major forest stands which are high in the mountains and at present untapped. Household fuel needs, however, have been met by the domestic supplies of wood. (39) At the same time, indiscriminate cutting has resulted in the transition of one-fifth of the forest area to scrub lands with resultant loss of valuable forest resources and consequent acceleration of soil erosion. In summary, the forest resources of Taiwan, by appropriately regulated cutting, should be able ultimately to supply the bulk of the island's needs based on prewar standards, but they offer little in the way of a stable resource upon which large-scale industry can be based.

The picture is even less bright with regard to mineral resources. In brief, Taiwan possesses few of the mineral requirements for modern industry. Of the major metallic minerals most significant in the development of such industry the island has none in really adequate supply with the exception of copper which is mined in the vicinity of Chi-lung. For all practical purposes iron ore, bauxite and alumina, magnesite and the auxiliary metals are absent. Apart from copper, only manganese is present in commercial quantities, but even then known reserves are small.

Non-metallic minerals are similarly restricted, although sulfur is mined in the volcanic zone north and northwest of T'ai-pei in quantities sufficient to supply the domestic demand. Limestone of relatively poor quality is available also, as are building stones and clays which provide the raw material for the locally made grey brick. Salt is available in abundance, but it is not derived from deposits of rock salt but from the evaporation of sea water along the relatively dry west coast. Enough was produced before the war (275,000 metric tons in 1939) to supply Japan with over 130,000 tons a year. On the other hand, petroleum, which was the focus of much developmental effort by the Japanese before the war, is now no longer produced in significant quantities. At present all of Taiwan's demand for crude petroleum is met by imports, primarily from the United States. Refining is done at the former Navy fueling station in Kao-hsiung, restored after the war.

(38) U. S. Navy Dept., CNO. Civil Affairs Handbook, Taiwan-Economic Supplement, Washington, 1944, pp. 34-5.

(39) Ibid. In 1938, 453,000 metric tons of firewood and 53,000 metric tons of lumber were produced. Bamboo also provided a major source of construction materials as a wood substitute.

The general power and fuel picture is the only bright feature on the resource landscape. The one relatively abundant fuel resource of the island is coal. Reserves are estimated at 440 million tons and are concentrated primarily on the margins of the T'ai-pei Basin in the north. Prewar production levelled off at some 2 million tons annually; a figure that is being approached once more today. At that rate of production, the supply will last over 200 years. Most of the coal is low-grade sub-bituminous. Its heating power, therefore, is low, about two-thirds that of medium-grade West Virginia coals.

More important than coal as a source of electric power in Taiwan, however, is running water. The estimated hydroelectric potential is 3.3 million KW, of which less than 10 per cent had been developed by the Japanese in the prewar period. In 1938 total kilowattage available was 234,000 KW, of which 180,000 was hydroelectric. In 1944 the total was 322,000 KW; in 1947, after an almost disastrous decline in 1945-6, it had risen to 212,000 KW; and in 1950 the best estimates placed capacity above that of 1944.

The distribution of hydroelectric resources is uneven, roughly two-thirds being west of the divide and one-third east. Most of the present development has taken place in the west, where the major consuming centers also are located. At present there are two major distribution systems, one serving the west and north, the second serving the east coast only. These are in process of being linked by means of a high-voltage transmission line running across the geographical center of the island between Jitsugetsutan and Hua-lien. In this way seasonal deficiencies that now afflict the western system during the dry season, (40) may in part be countered by surpluses along the east coast, the seasonal rainfall distribution of which partially complements that of the west.

The core of the hydroelectric system is the great reservoir and three power plants at Jitsugetsutan which were completed in 1937 and possessed a gross capacity of 158,000 KW. In 1939 the Jitsugetsutan installations supplied over 50 per cent of the total electrical output on the island. In spite of severe damage to the transformers from American bombers during the war, the capacity of the plants has been restored and slightly exceeded in 1950. The island's thermoelectric plants, of which the largest is in Chi-lung (38,000 KW), with some exceptions, may be considered off-season auxiliaries to these basic hydroelectric installations.

The use of electricity before the war was widespread in Taiwan, and almost every village home had at least one electric-

(40) Taiwan's rivers are short and swift, swollen in summer, often dry in winter. Although there are numerous check dams in the north to delay or prevent flooding of low-lands, there are very few storage reservoirs of size which can furnish supplies of water evenly distributed the year around.

al outlet, as in Japan. Industry took 125,000 KW out of some 220,000 KW total in 1937, the metal-refining industries accounting for one-third. This fraction undoubtedly increased later on, but no statistics are available, and current statistics are obscured under the heading of "strategic security." In 1937, however, all industries other than metal refining, mining, and foodstuffs demanded only 28,000 KW.

The possibilities for hydroelectric development are considerable, and it is on this resource factor that much of the initial effort toward developing Taiwan's economy is being placed. The integration of the power plants into a closed system and the maintenance of stand-by thermoelectric plants will help counter the periodic droughts and dry-season shortages which now adversely affect the supply of power.

Industrialization to Date

The primary productive industry in Taiwan is agriculture. No other creative economic activity has or does approach it either in terms of the value of output, the volume of output, or the numbers of people dependent on or employed in it.

Until 1936 and the China Incident, "industrialization" in Taiwan was practically non-existent. The basic industry was food processing, chiefly sugar refining, which is essentially an adjunct of agriculture rather than an independent process. In 1936 the "foodstuffs" category of industry accounted for more than 70 per cent (208 million yen) of the total value of industrial production. Of this 208 million, sugar and molasses accounted for almost 200 millions. Of the 30 per cent of the industrial output remaining, a third consisted of chemicals, including camphor and its products, lime, some fertilizers, coke, drugs, soap, and vegetable oils. The balance was divided up between metals, textiles, machinery, lumber, and ceramics (chiefly bricks and roofing tiles).

By 1937, however, the power from the Jitsugetsutan installations had become generally available and a certain expansion of industry took place along lines directed by the government. The chief emphasis was on metals and chemicals and a number of plants were established and projected in these fields. These were essentially war industries. Textiles, the traditional product of agrarian economies in transition toward industrialization, were almost totally neglected. The most important development was the establishment of aluminum plants using hydroelectric power at Kao-hsiung and later at Hua-lien, the former with a productive capacity of 12,000 tons of aluminum and 24,000 tons of alumina based on bauxite imported from Bintan, the latter with a capacity under 10,000 tons of aluminum refined from alumina processed on Kyushu. The Kao-hsiung plant is currently in operation; the Hua-lien plant is not.

Other metal-refining plants, chiefly for manganese-refining and processing, were established. One plant near Chi-lung also produced ferro-silicon from raw materials imported from Japan and Manchukuo; another produced ferro-magnesium from Manchurian magnesite; a third, located between Taipei and Chi-lung, produced iron and steel. None are now operational. (41)

(41) Several electric furnace plants established after 1939 are

Fertilizer production was well below the needs of the country even after the establishment of plants which produced superphosphates and ammonium sulphates. Production of the latter approximated 20,000 tons, while imports fluctuated around 200,000 tons. (42) Cement production, however, rose rapidly, and the Japanese-founded facilities at Kao-hsiung and Su-ao produced 300,000 tons in 1950, primarily from domestic raw materials, and satisfied all the existing demand. Alcohol, as a by-product for sugar refining, was the heart of the chemical industry and accounted for 20-25 per cent of the total value of chemical output and a substantial share of exports.

The Japanese "industrialization" of Taiwan, therefore, was in part reality, in part mere wraith. Insofar as it did progress, it was superimposed upon a population which remained dependent on imported commercial fertilizers, with which to maintain and increase agricultural productivity, and on imported basic consumers goods. There was, however, a significant increase in the output of metals and chemicals, their value in 1940 equalling 20 per cent of the total industrial output as compared with 16 per cent in 1937. This was a notable shift, but it was due to temporary and heavy emphasis on strategic industries designed not to supply or support a domestic economy but to buttress the externalized Japanese war economy.

The number of persons employed in industrial enterprises with ten or more employees in 1938 amounted to some 170,000 persons, but this figure includes those persons employed in food processing and mining, industries which are reported to have employed more than half of the total. (43) Only a handful of plants employed more than 300 persons, most employed less than thirty, and the average employed ten or less. For this reason the number of laborers in industry must have been larger than that given above, but even if it is assumed to have been 200,000, the industrial labor force would still have been no more than 10 per cent of the total labor force. Although a not inconsequential percentage when compared with China Proper, this percentage compares unfavorably with Japan's estimated 25 per cent.

apparently no longer operational. They had been dependent on locally produced pig iron and local scrap. See U. S. Bureau of Mines, Foreign Minerals Survey, "Mineral Resources of China," 1948, p. 45.

(42) A report published since this paper was written notes that a total of 372,000 metric tons of all fertilizers, 280,000 of them chemical fertilizers, were imported in 1951. These figures compare with over 500,000 tons and 350,000 tons respectively in 1940. The Nationalist government, with JCRR aid, has established plants producing 66,000 metric tons of cyanimid and 51,000 tons of superphosphates, and is expanding ammonium sulphate production to 33,000 tons. If these reports are accurate, the supply of fertilizers available will soon equal the prewar quantities. See T. H. Shen, "Food Production and Administration in Taiwan," Scientific Monthly, May, 1952, pp. 261-2.

(43) U. S. Navy, Civil Affairs Handbook, Taiwan, Economic Supplement, pp. 46-7.

Taiwanese labor was characterized also by extreme mobility and by a lack of skilled personnel. The ties between farm and factory worker were strong, and there was a severe seasonal deficiency of labor during the harvest and planting seasons. In fact, the Japanese talked of importing labor to make up the deficit. Furthermore, most of the skilled positions, partly as a matter of Japanese policy, were occupied by Japanese. There were almost no Japanese laborers other than those engaged in agriculture as owner-farmers. Many of the Chinese were employed on a contract basis under the control of Chinese labor procurers in much the same manner that contract labor was employed in China Proper, Southeast Asia, and India, especially for foreign enterprises. One of the key problems in Taiwan today is the replacement of Japanese technicians with Chinese. Unfortunately, relatively few of the mainlanders possess the necessary technical skills, and those who do too often have been trained for top-echelon rather than middle-echelon jobs.

III TAIWAN'S DEVELOPMENT: PROCESS AND PROBLEMS

With the foregoing background it is possible to examine the development of Taiwan's economy with some understanding and in the light of the following basic changes in the postwar status of the island. First, it is no longer a colonial possession of Japan. The immediate consequences have been several: (a) a new administrative elite from the Chinese mainland has replaced the Japanese colonial administrator and entrepreneur, (b) such Japanese capital as was available before the war no longer is available, (c) Japanese technological skills have in large part been removed with the repatriation of Japanese nationals in 1946-7, (d) the chief market for Taiwan's surpluses has been restricted. Second, the second market possibility, China, under whose colonial-like rule Taiwan had come immediately after the war, is now cut off. Third, Taiwan has become a seat of government for non-Communist China and the base for an unproductive military force and an inadequately employed bureaucracy, in all, including refugees, amounting to almost 2.5 million persons. Fourth, the postwar state of the Far East is such that free trade within the area is no longer possible.

Japan's defeat had severe and immediate repercussions on the Formosan economy. Production at all levels and in almost all spheres of economic activity declined drastically. With few exceptions such as power development, the economy still remains depressed. Agricultural output as a whole lies well below prewar standards, although as stated previously the gross output of certain crops has reached and exceeded prewar levels. At the same time the influx of refugees, troops, and government officials from the mainland has placed a heavy and pervasive burden on the depressed economy. In brief, an area of considerable economic development along specialized colonial lines apparently has retrogressed under pressures combined of internal and external forces--economic, political, and social.

Characteristics of Japanese Economic
Development in Taiwan

Japan looked to Taiwan as a major source of foodstuffs with which to counter part of the 20 per cent food deficiency in Japan. It hoped also that Taiwan would become a source of vital raw materials to supplement Japan's limited resources, but these hopes were constrained by a lack of significant natural resources, other than agricultural. Almost all of Japan's period of suzerainty over the island, therefore, except for the last decade at most, was characterized by an overwhelming emphasis on agricultural expansion. Following the same direction of effort, about half of the total production of all commodities in Taiwan was exported, for all general purposes, to Japan.

Did development actually take place? If the enormous increases in production of agricultural commodities is an index, and it is, yes. The amount of rice produced more than doubled between 1905 and 1935. (44) Sugar production tripled between 1910 and 1940 alone. (45) These production gains more than kept pace with, and in fact kept well ahead of, increases in population.

Did these gains materially affect the living standards of the Taiwanese? Since the island was a colony being developed along restricted lines not necessarily directed toward bettering the welfare of the inhabitants, such advantages were relatively small, but they did exist. The Taiwan farmer ate rice; this was not always true even in South China. He often had meat; this was rare in China. He was simply clothed, but he was adequately clothed, not always the case in China. He had some opportunities for obtaining employment off the farm. It is true that he was greatly exploited, but apparently not unmercifully. The Japanese regulated wages and hours, along Japanese lines, although they set different wage scales for Japanese and Chinese. (46) They also limited rents, introduced standardized contracts, (47) and in effect anticipated some of the measures recently promulgated through the rent reduction program.

Did all this pay off for Japan? Emphatically, yes. Not only did Japan receive the needed foodstuffs and some raw materials that she hoped to get, she also reaped the advantages accruing to the Taiwanese export surplus of trade, which necessitated no loss of foreign exchange since the Taiwan yen was geared to the Japanese yen and was based on holdings of Japanese government bonds in the Bank of Taiwan. The value of these surpluses amounted to about 100 million yen a year, almost a third

(44) Ch'en, Land Utilization, p. 116 (in Chinese).

(45) Ibid., p. 163. The production curve was not without major fluctuation, but the trend was clear throughout the period.

(46) U. S. Navy, op. cit., Economic Supplement, p. 47.

(47) Contractual standards, however, apparently were directed in large part toward regulating the relations between the sugar companies and the small cane-producing farmers.

TABLE I
TAIWAN'S TRADE WITH JAPAN^a

	Exports ^b (in 000 yen)	Imports ^c (in 000 yen)
1896 - 1900	2,860	4,888
1911 - 1915	49,122	40,071
1926 - 1930	215,210	127,666
1936	358,895	243,832
1938	420,104	327,950
1939	509,745	357,608

^aSource: A. Grajdanzev, Formosa Today
(New York: Institute of Pacific
Relations, 1942), pp. 143-4.

^bPercentage of Taiwan's exports to Japan:
1896-1900 = 19.6
1926-1930 = 85.5
1937 = 93.2 (95 including
Manchuria)

^cPercentage of Taiwan's imports from Japan:
1896-1900 = 27
1926-1930 = 68.3
1937 = 83.4 (92.5 including
Manchuria)

of the gross value of imports in 1938. Furthermore, the amount of postal savings receipts transferred to Japan and the direct surplus banking transactions from Taiwan to Japan, for which there are no statistics immediately available, are estimated at some 50 million yen annually. Thus, every year, for at least ten years previous to the war, Japan is believed to have gained directly 150 million yen from her investments in Taiwan, and for the 25 years before that lesser but still significant sums. If it is understood that a proportion of the Japanese exports to Taiwan were for military purposes and that the Taiwan government was completely self-supporting after 1905, these generalizations become even more significant.

If the above estimates are at all reasonable, they show interest payments on what must have been a huge capital investment originating in Japan. What was the extent of this Japan-originated capital? Estimated figures for 1939 indicate that, as of that date, the Japanese had invested some 800 million yen since they assumed control over the island. (48) This seems a

(48) U. S. Navy, op. cit., Economic Supplement, p. 4. There is considerable question regarding the actual amount of Japanese investment, and indeed the meaning of the term itself. Ch'en, in the Chinese text of his land utilization study, indicates that the amount approached 1.3 billion yen as early as 1929, (p. 45), but he, like so many Chinese and Japanese both, offers no concrete data concerning the "flow of Japanese capital" into the island.

very moderate sum, certainly, in relation to the dividends that were being returned. All of the investment would have been paid off in effect during the five-year period 1935-1940. It appears further that a large percentage of this investment did not originate in Japan at all, but originated in Taiwan, where it was invested by the Taiwan Government-General or by corporative or private Japanese investors. Of the 800 million yen, about a third consisted of Taiwan government enterprises. Much of the industrial investment of 350 millions was partly from government funds in association with corporative capital. (49)

- (49) The Taiwan Keizai Nenkan, 1942 makes it clear that 350 million yen did originate in Japan, by an analysis of the paid-up capital of the stock companies incorporated under island law. Since this sum amounted to about two-thirds of the total corporative investment in all industries (including agriculture), it is argued that Taiwan was heavily dependent upon Japanese capital during the developmental process. The yearbook fails to make clear, however, how much of the invested capital came from profits gained in activities localized on the island.

For example, the Taiwan Sugar Refining Company (Taiwan Seito K.K.) is apparently considered to have derived its capital from Japan. Actually, as was the case with all of the larger sugar companies, an original investment was made from Japan, in the case of this company, one million yen in 1900 by the Mitsui interests. The paid-up capital of the company was later increased to over 43 millions at the end of 1940, presumably from profits gained from the company's operations, and that figure was included in the Japan-originated totals. Since this pattern apparently is a common one, it seems likely that the 350 million figure for Japan-originated investment is much too high. The situation is further complicated by the fact that Mitsui Bussan, as the parent company of Taiwan Seito, gained considerable returns from its initial investment. When these were reinvested in Taiwan, they would be classified as being of foreign rather than internal origin, when in fact they were basically derived from the island's productivity.

In addition to this complex pattern of Zaibatsu interests in the island, there was the participation of the government, both directly and indirectly, in developmental activities of a specific nature through the establishment of semi-government and government corporations. The Taiwan Electric Power Company was founded in 1919 with a capital of 30 million yen, of which 12 millions were supplied by the Government-General. The balance was supplied by Mitsui and the Nippon Life Insurance Company, itself tied in with other of the Zaibatsu, both of which were actively participating in Taiwan's trade and commerce. Unquestionably, some of the returns from their initial investment were reinvested in Taiwan, but whether this can be determined quantitatively is questionable. The power company functioned as an arm of the Government-General and established itself, among others, in the fields of metal refining, transportation, and tourism. In any case, the semi-government corporation, acting as a private agent but with all the assurance and safety of government, is a prime characteristic of development in Taiwan, even more so than in Japan, although the Imperial Steel Works and shipping

From 1899 to 1937, 163 millions were invested in railways alone. (50)

The total debit trade balance between the two areas in the early days of control (1895-1905) amounted to only 30 million yen. Furthermore, the amount of direct subsidies to the sugar industry in all amounted to only 13 million yen between 1902 and 1932. (51) Even allowing for the costs of establishing administrative and military control over the island in the early period, it seems that the total amount of Japanese-originated capital injected into Taiwan during the entire Japanese era amounted to little more than the export surplus of Taiwan in two years of the late thirties. Furthermore, Japan at all times has been short on capital available for investment, and no bullion had drained from Japan to Taiwan; in fact, there was a regular movement of bullion from Taiwan toward Japan.

Definitive conclusions await more detailed studies of the structure of the Japanese economy. The division between governmental and private investments in the Empire always was unclear, and the records of Japanese companies with major interests both in Japan and the colonies have not been studied here. Even so, on the basis of admittedly limited evidence, it seems clear that except for the decade 1895-1905, most of the development of the Taiwan economy during the Japanese administration was financed by Taiwan-originated, externally organized capital.

Three Periods of Development

The Japanese recognize three periods during which they pursued differing policies toward the ceded island. The first extended roughly from 1895 to 1914; the second from 1914 to about 1932; the third from the latter date on.

During the first period the emphasis was on the consolidation of political power and on the laying of a groundwork upon which later development could proceed. The Japanese government waged military campaigns against the aborigines, and by 1904 or so had made secure the greater part of the arable areas within the island; transportation facilities were expanded and the railway which had been begun by the Chinese to connect T'ai-pei and Chi-lung was completed and extended southward along the western plains to Kao-hsiung; port facilities, especially at Chi-lung and Kao-hsiung were constructed; and roads were built both for commercial and military purposes. The establishment of these facilities and the pacification and even local elimination of the aborigines made available additional arable lands which had not previously been accessible. Most of

companies such as Dairen K.K., Kokusai K.K., and Kawasaki K.K. are substantial prewar indications of government participation in Japanese industry.

(50) U. S. Navy, op. cit., p. 4.

(51) Indirect subsidization took place through Japanese import tariffs directed against non-Formosan sugar and government subsidies to irrigation and other works which materially assisted the sugar industry. For information on sugar duties see S. Nasu, Aspects of Japanese Agriculture, New York, 1941, p. 56.

these were brought under cultivation within a very short time, but with relatively little direct participation of the government.

Since the land was the basis of livelihood and since taxes upon the land were expected to be a prime source of government income, as they were in Japan, a Land Survey Bureau was established in 1898, of which the chief task was an accurate survey of land and property rights. (52) The result of this survey completed in early 1905 indicated that the total amount of land under cultivation was over 633,000 hectares as compared with the previously recorded figure of about 362,000 hectares. (53) This near-doubling of the amount of land under cultivation, however, was not due primarily to large additional amounts of land coming under cultivation, but to the inadequacy of the previous land census of 1886. The immediate result of the survey was a jump in the volume of rent receipts to the government, which doubled, but a more significant consequence was the final clarification of the Taiwanese land ownership system which had been unbelievably complicated.

In brief, land ownership had been concentrated in a relatively small number of great families, most of which had obtained their land as a result of services rendered previous governments, or by pioneering occupance. (54) Under them were tenants, later arrivals who had placed themselves under the suzerainty of the great families. In time, however, there developed tenant's rights to land, in the Fukien custom, whereby rents were still paid to the landowner, but the tenant could not be dispossessed and could dispose of his rights to his land as he pleased. As the landowners withdrew from active supervision of their properties, the "tenants" began to sublease their lands to more recent arrivals along the inland agricultural frontier particularly, and themselves became landlords. Thus, there developed a three-layered hierarchy of great landowners, tenant-landlords, and subtenants. In addition, the government itself, through reclamation activities and expropriations, also had become a landlord, further complicating the land tenure picture.

Upon the completion of the land survey, the Japanese promulgated the so-called Land Investigation Regulations, the immediate results of which led to a standardization of units of land measurement, a recording of cadastral rights throughout the island, and increased efficiency in tax collection. The rights of the great landlords were abolished by decree of the Imperial Diet and were purchased through the issuance of government bonds valued altogether at about 4 million yen, while ownership was conferred on the so-called "tenants" of whom many were subleasing lands to second-degree tenants. Tenancy, therefore, was not abolished, as the law operated only down through the first level of tenancy; nor did it prevent former landowners from investing some of their government bonds in land and becoming

(52) Takekoshi, op. cit., pp. 126 ff.

(53) Ch'en, Land Utilization, p. 46 (in Chinese).

(54) The great influx of Chinese began early in the 18th century. Before this time colonists, refugees of the harassed Ming empire, had settled on the better agricultural lands.

landowners once more. Despite the limitations of the act, it appears that the first-degree tenants were contented with the ownership of land, although it becomes clear that later on they realized the full burden of government taxes which had before been the responsibility of the great landlords. The former landowners were pacified by the bonds with which they were reimbursed and by the relief from taxation on their lands. (55) The sub-tenants, by this time apparently the bulk of the Chinese population, were at first unaffected either way, but in time were cultivated through the regularization of land rental procedures and by limitations on rents and on the rights of landlords. A further result of this land reform program was a rapid stabilization in land values and tenance, and it was this aspect of the program which stimulated Japanese agricultural investment in Taiwan, primarily in sugar. (56)

The agricultural land program was followed by a survey of forested areas and by the eventual appropriation of almost all of the forest lands by the government. Thus, a virtual government monopoly on timber and forest products was established. (57)

In this early period also the government monopolies over salt, camphor, and opium were set up, and in the 1903 accounts of the Government-General these monopolies accounted for 40 per cent of the total government revenue. (58) Later, monopolies

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- (55) Somewhat wishfully, Takekoshi says: "The landowners have received (benefits), for now there is little likelihood of their being cheated by cunning and unscrupulous tenants, and having to pay taxes to the Government for fields which bring them in no rents. With a goodly number of Government bonds secure in their cash-boxes, they can spend the rest of their lives in happy retirement." Op.cit., p. 132.
- (56) Ch'en quotes a Japanese author, Uyehara, Tadao, as saying that the survey and the following legislation "1. promoted knowledge of the area, thereby contributing to the maintenance of public order, 2. ... promoted accurate land registration and increased revenues, 3. clarified land tenure, thereby insuring security in land transactions and stabilizing financial investments. In short, these measures were calculated to lure Japanese capital into Taiwan, offering Japanese capitalists security in their investments. Therefore, they may be regarded as ... the groundwork for Japan's economic conquest of Taiwan." Ch'en, Land Utilization, p. 47 (in Chinese).
- (57) By 1915 some 920,000 hectares had been thus appropriated. Ibid., p. 46.
- (58) Takekoshi, op. cit., p. 140. Since subsidies from Japan and bond sales also accounted for 40 per cent of the revenue, the monopolies provided two-thirds of the revenue from domestic sources in 1903.

over tobacco and alcoholic beverages were also established. The government took over responsibility for transportation facilities and also the income to be derived therefrom. At the same time, the powers of the Government-General were assigned in such a way as to make the island decreasingly dependent on Japan proper and to give its administration an autonomy which might not have been expected in a colonial territory. In 1898 the Bank of Taiwan was founded as a government institution which was to engage in routine banking operations and also was to act as the official note issuing agency and as the fiscal arm of government.

In laying the groundwork for development the Japanese also made studies of the indigenous culture with which they were to deal. (59) Moreover, they adopted one of the salient organizational features of the Chinese society occupying the island, namely, the pao-chia or hoko system. This was an ancient system of political and social organization centered about the family or household and groups of households, which had been imported from the Chinese mainland. (60)

The second developmental period stems from about 1914 and continues to the Manchurian Incident of 1931-2. During this period emphasis was on intensifying agricultural activity. Such lands as were not already under cultivation were placed under crops. Irrigation facilities were expanded, and marketing controls of agricultural products were established. Transportation facilities were improved, and agencies were established to engage in agricultural research. The National University of Taiwan (Taihoku Teikoku Daigaku) was founded in 1928, and its facilities were quickly linked to agricultural development. The period ended with a highly developed agricultural economy based on exports of sugar and rice primarily, with lesser exports of sugar-refining by-products, pineapples, bananas, tea, camphor, and high quality construction timber, with increased controls over agricultural production and marketing, and with control of the economy in the hands of a relatively few Japanese sponsored by the Government-General. Meanwhile, the island had passed almost completely within the trade orbit of Japan.

The third period, beginning in the early thirties and lasting through the war, was characterized by a major emphasis on industrialization and by the entry of the government into all phases of economic affairs. Both production and consumption, as might have been expected in a colonial economy placed on a war footing, were closely regulated. The government participated in the establishment of non-agriculturally based industries and gave every assistance to Japanese corporations in

(59) Okamatsu, Santaro, Provisional Report on Investigations of Laws and Customs in the Island of Formosa (Kobe: Kobe Herald, 1902).

(60) Hoko is the Japanese pronunciation of the characters pronounced pao-chia in Chinese: 保甲.

The Japanese argued that their adoption of the hoko system indicated their desire to convince the islanders of the Japanese respect for indigenous institutions, but it is interesting to note that the whole concept of extended families and groups of families as units of social organization is also familiar and widespread in Japanese society.

their industrializing activities. The Taiwan Development Corporation, similar in purpose to the Manchurian Industrial Development Company and the Oriental Development Company in Korea, was established with 30 million yen of government funds in 1936 to develop industry both in Taiwan and in the Nanyo (lit. the "south seas," or realistically, "Southeast Asia"). The latter part of this dual function indicated the value the Japanese placed upon Taiwan as a base of operations for southward expansion.

The Nature of Political and Social Control

The power of the Government-General permeated the entire Formosan economic and social structure. Taiwan was organized politically into strict hierarchical patterns with the Government-General at the top of the pyramid, the provincial governors next, the county heads next, and the city, township, and village heads last. All of these last named officials were appointed by the Governor-General, and membership down through the county level was in practice restricted to Japanese. (61)

The county head occupied an especially significant position since he was also the head of the local police, and it was through him that national policy was implemented on the local level. He was the person to whom the township and village officials reported, and it was under his supervision that censuses of economic and political information were taken. The city mayors, however, were responsible directly to the governor of the province.

The hoko system of organization provided the broad base of the administrative pyramid. As indicated previously, it consisted of an adaptation of the Chinese pao-chia system of community organization by families. The unit of the system was the family, the next largest unit the ko, which consisted of ten families, and the largest unit the ho, which consisted of about 100 families. The leaders of the ho and the ko were elected by the heads of the individual households, but the appointment of the ho elder was subject to the approval of the county head and the provincial government, while the ko elders had to be approved by the county and local police authorities. In effect, moreover, the group was held responsible for the actions of the individual, and this made the hoko members effective, if often unwilling, supporters of the administration and the police in uncovering malcontents and preserving public order. (62) The control of the Japanese over this organizational system, therefore, was maintained at both high and low levels, and was buttressed by the eventual requirement that the elders elected must have a knowledge of Japanese. (63)

(61) U. S. Navy, op. cit., pp. 73-4.

(62) Within the hoko system also was found the so-called sotei-dan, or youth corps, composed of young men trained by the local police and used during times of flood and fire, or as an auxiliary to the police. The expenses attendant upon this organization, and indeed the entire hoko system, were paid for by the individual ko and ho. The Japanese did not contribute to the support of this "grass roots" organization except under exceptional circumstances.

(63) It is reported that in 1930 only 10 per cent of the

The Japanese also controlled the persuasive media offered by the so-called "associations," which were modeled on their Japanese equivalents, the kumiai, but which also had their roots deep in the indigenous Chinese society and therefore proved especially useful in organizing local effort. The hoko itself may be considered an example of such an association. All associations, whatever their function, were subject to governmental control or police surveillance in direct or indirect form. The functions of these associations were diverse and included credit, marketing, purchasing, and joint utilization activities, as well as the general production and retailing functions of the consumers' cooperative. Special associations existed for various industries, and it was through the nokai, or agricultural associations, that the government introduced many of its agricultural innovations. The associations were self-financing, and were often promoted by the government directly through the medium of the county or lesser officials.

The supplying of credit was a major function of the associations, and in 1940 more than "500 associations--approximately one per village--had been organized and were operating under the Taiwan Industrial Association Regulations, originally enacted in 1913." The deposits of the credit associations, both urban and rural, in 1941 amounted to more than 220 million yen, and provided the chief means by which the non-Japanese could obtain credit. (64) As long as the activities of the credit associations were directed toward policies in line with those of the Government-General, they operated with little interference, but since the heads of the associations were subject to the approval of the government, any aberrations from an accepted norm resulted in a change to more pliable executive personnel. (65)

The associations overlapped each other in a variety of ways. The agricultural associations were overlapped in form, area, and function by the livestock associations, the various crop growers associations for almost every crop grown in Taiwan, the rice associations of producers, sellers, and warehousemen, the water utilization associations through which the government was able to control the distribution of irrigation water, and numerous others. But in the case of each of the associations the ultimate determinant of policy was the government, operating either on the local or the island level, but almost always by indirection and with semi-popular participation in everyday affairs.

Chinese and aborigines on the island knew Japanese. This may well have been true with regard to the written language, but on the whole spoken Japanese was widespread and showed signs of replacing the native dialects as a lingua franca for all peoples on the island.

(64) Taiwan Keizai Nempo, 1943, p. 385.

(65) The associations were strongly influenced by the Taiwan Industrial Association Society, established in 1923, which was a government agency designed to encourage the establishment of and orient the activities of the kumiai. Ibid., p. 252.

The Problem of Capital Organization

As indicated previously, the bulk of the capital which participated in the development of the prewar Taiwanese economy, though Japanese owned, was apparently not Japanese originated. Nevertheless, a significant amount of Japanese capital came into Taiwan. The attractions were these: (1) political stability and control, (2) abundant and lenient credit offered by the Japanese-controlled banks, (3) protection offered by Japanese tariffs, and (4) a stable currency. Most of the capital which first entered the country, apart from the direct Japanese government subsidies which went into the construction of transportation facilities, the land survey, and the pacification and early administration of the country, went into agriculture, into the purchase of land and the erection of mills for the sugar industry. Much of this investment was assisted by direct government subsidy, on a small scale relative to the size of the corporations later developed, but significant at the time of investment. Other capital went into mining, especially that of coal and gold. (66).

The largest single investor in Taiwan economic development, however, was the Government-General. Moreover, it was the largest and most effective accumulator and organizer of capital. The means by which the Government-General collected and organized capital are suggested in the previous discussion of political control. As early as 1905, the Japanese claimed there was no tax evasion to speak of in Taiwan, and one of the major factors which led to this situation was the political organization --from Governor-General down to the single family--checked and supported by an all-pervasive police organization.

By far the greatest source of income for the government, however, came from the Monopoly Bureau and the government monopolies on salt, opium, tobacco, camphor, and alcoholic beverages. The government also operated the railways and the other means of communications, as in Japan, and such profits as accrued also became a source of income. In 1935, over 80 per cent of the government's ordinary revenue, and 60 per cent of the total revenue, came from these government enterprises and properties. Since the difference between the ordinary

(66) The largest coal-mining company in Taiwan was the Kiirun Tanko K.K., a subsidiary of Mitsui and Gan, two of the Zaibatsu. Mitsui also controlled the distribution rights to the coal produced by the Taiyo Kogyo K.K., the next largest producer, thereby dominating the marketing of Taiwan coal. The Gan family, moreover, controlled Taiyo Kogyo, which was also the second largest gold producer on the island. Cooperative investment by the Zaibatsu was not unusual, as in the case of the Japan Aluminum Co. plant built at Takao with capital from Mitsui, Mitsubishi, Sumitomo, Yasuda, and Furukawa interests. These examples indicate the intricacy of the relationships among the Zaibatsu and their Taiwan subsidiaries. Their investment and reinvestment in Taiwan was stimulated by the government's acceptance and abetment of their monopolistic control of industry.

(67) U. S. Navy, op. cit., Economic Supplement, p. 119.

revenue of 110 million yen and the total of 141 millions was due to 29 million yen surplus from the preceding year, the significance of the monopoly proceeds can be seen in its proper light. (67) Even in 1940, 75 per cent of the ordinary revenue stemmed from government enterprises, while only 19 per cent came from taxes and duties. The single largest sources of income were the railways, the liquor monopoly, and the tobacco monopoly in that order, but the expenses associated with the government railways also were much the greater and nearly balanced expenditures. The net income from government enterprises and properties in 1940 amounted to about 80 million yen, 40 per cent of the total budget.

In effect, then, the government maintained itself on the receipts derived from the monopolies and other enterprises which it operated and from taxes levied primarily on the agricultural population, especially the Chinese. The circulation of money could be controlled in large part by the central bank, which issued currency and played much the greater role in the banking life of the island. On the other hand, capital from private corporations in Japan often was utilized in association with Government-General capital in the semi-private corporations. Profits were augmented by the transfer to Taiwan, at relatively small cost to the company, of commercial and financial branches which performed the middleman functions for the entire Taiwanese economy. Zaibatsu shipping, trading, and banking agencies especially profited from this favored situation. (68)

The Promotion of Development

Although the extent of government subsidization declined rapidly after the end of the first period in Taiwan's developmental history, subsidies continued to play an important role in the economy. Between 1935 and 1940 direct subsidies averaged about 8 million yen a year, of which at least one million were devoted to the financing of petroleum exploration and exploitation.

One of the more important outlets for government developmental activities was irrigation. There were three kinds of irrigation organizations in Taiwan: the first, public; the second, the water utilization associations; and the third, private. The third accounted for only 15 per cent of the total area irrigated in 1939, and was fast declining in importance. The control of irrigation facilities was, of course, a major weapon in the Japanese struggle to control the island as a whole and shape its economy to Japanese ends. The public associations controlled these irrigation systems of particular public concern and were directly under governmental control. The water utilization associations bore some semblances of private enter-

(68) Although the Japanese dominated the foreign trade in which profits were large, Chinese entrepreneurs essentially controlled the internal trade of the island. Only 43 per cent of the private capital invested in commerce was under direct Japanese control; the balance represented most of the Chinese investment in the non-agricultural economy. Capital in commerce amounted to about 20 per cent of the total private investment in Taiwan.

prise, but in fact were organized under government regulations, frequently under government auspices, and were always subject to governmental checking at every turn. Nevertheless, their budgets, by and large, were paid out of assessments from local membership, rather than from government subsidies. There were, of course, numerous partial exceptions to this generalization. One of these was in connection with the Chia-nan (Kanan) Irrigation project in T'ai-nan province which was begun in 1920 and "in eleven years had cost Y54,140,000, of which Y26,000,000 had come from the Taiwan treasury." (69) Other lesser irrigation works were constructed on a similar basis, with the Government-General contributing about half of the total expenditures and the provincial governments and association members contributing the remainder.

The government also supported research in agriculture, and each province contained a number of agricultural agencies directed toward increasing production and lowering costs. In Taihoku (T'ai-pei) province, for example, there were several branches of the Rice and Other Cereals Bureau which were concerned with the grading and marketing of rice, a rinderpest serum production office, a weights and measures station, several plant inspection offices, a rice plant nursery, a tea inspection station, a tea industry training station, a sericulture office, a fertilizer inspection station, monopoly bureau branches, which oversaw tobacco production, and several agencies of the Taihoku Imperial University, such as agricultural experiment stations, a sugar cane nursery, and a livestock breeding farm. (70)

Most of these agencies, other than those affiliated with the University, were under the control of the Industrial Development Bureau of the Government-General. (71) This bureau also maintained research organizations and advisory agencies in all industrial fields ranging from hats, to pineapples, to afforestation. Another government bureau was the aforementioned Rice and Other Cereals Bureau which controlled the inspection and price of rice directly and indirectly through the rice producers and merchants associations. The traffic bureau, which maintained the railways, and the department of communications, which controlled the telephone and telegraph systems, also had separate administrative status, as did the Monopoly Bureau which not only regulated the production of its commodities, but also operated factories for their manufacture as in

(69) U. S. Navy, op. cit., Taiwan Province, p. 6. Water in the Chia-nan area was rationed by the water utilization association, since there was not a sufficient supply of water for two crops of rice each year on each piece of land. This situation lent itself to control of crops, since a 3-year crop rotation was enforced, which compelled the cultivation of sugar cane as well as rice. The government also used taxation as a means of encouraging can production by levying lower taxes on dry cultivated land, including cane lands whether they were irrigated or not, then on irrigated, or wet-rice lands.

(70) U. S. Navy, op. cit., Taihoku Province, pp. 22-5.

(71) Ibid., pp. 78 ff.

the case of opium and camphor. The University itself was a separate agency which had under its control agricultural experiment stations, forestry experiment stations, industrial research stations, and sugar industry experimental stations, which were operated both at the University and in branches all over the island. (72)

Thus, stimuli were brought into the economy to keep it a "going concern." The Japanese plowed back into the land considerable amounts of profits and tax receipts, and developed and forcibly introduced new agricultural techniques which continued to raise per unit and per capita agricultural output long after the cultivated land area ceased to expand rapidly. The availability of water through irrigation works, although leading to tighter controls over agriculture, also led to much larger yields, and the introduction of new species of cane and rice bore similar fruit.

The long-run Japanese plan envisaged economic development primarily in terms of increased agricultural production accompanied by the construction of an efficient transportation network including port facilities and followed by the development of power resources which are basic to any major industrial enterprise. Such other resources as were exploitable with minima of required capital were tapped: salt, forests, coal deposits, by-products from sugar refining such as alcohol, and minerals such as gold. Economic self-sufficiency for the island, until after 1941, was not a consideration; it was to be one specialized cog in the Japanese machine and dependent on Japan for such producers' and consumers' goods as it required. As a colony, it was developed under a system of coercion rather than consent. This was the conception; this was its implementation.

The Postwar Problem

If Taiwan were now in a position to take off from its pre-war state, its problems would be soluble at least for the immediate future, and long-range plans could be established upon a relatively stable base. The changes noted in the first part of this section, however, have created new problems which demand new solutions.

At the close of the war the economic structure of the island was near collapse. The 20,000 Japanese agricultural technicians had gone, fertilizers were scarce, the transportation

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- (72) The active participation of the government in economic development is indicated not only by these examples, but also by items selected from the 1940 budget. These included funds for developing fuel resources, for encouraging change of fuel for motors and stock farming, for improving general and industrial conditions in the Pescadores; for railway improvements, for construction and improvement of telegraph and telephone facilities, for subsidizing shipping; for port construction at Gosei; for city planning; for encouraging the cultivation of hemp and the planting of special crops on irrigated rice land. In the previous year's budget similar items appeared, plus such others for the establishment of an Industrial Research Institute, and for the exploration of fishing grounds in the South China Sea.

and power systems were disrupted, irrigation facilities had deteriorated; in short, the integrated administrative skeleton that held the economic and political body together had vanished and in its place was an amorphous mass of bureaucrats, troops, legitimate businessmen, and entrepreneurial sharpers. The heart's-blood of the organism, its non-fixed capital, had vanished with the swift inflation that consumed savings and the return to a near-barter rather than a money economy.

The three sources for capital with which to reactivate the economy seem to be these: (1) bullion and foreign bonds brought from the mainland by the Nationalist government, (2) returns from surpluses sold abroad, and (3) loans or grants from other countries, i.e., the United States.

The first source did exist, but most of the financial resources brought from the mainland have been devoted to the expenses of the National government and to the maintenance of the troops upon whose strength its authority depends. The second source did not exist at first and even now is limited by the relatively small surpluses available and the restriction or loss of the major markets, first Japan and then China, to which exports could go in quantity. The third also exists, but the sums granted thus far, except for military aid, have been small. Even so, these have been most effective as used under ECA auspices and those of the JCRR.

It may appear that Taiwan is finally caught in that metaphoric trap of "vicious circles within vicious circles." Because the country does not have capital handy it cannot develop further; and it cannot accumulate capital because it is not developed enough, or because recession has set in.

Without attempting to simplify what is complex or to minimize what is formidable, it is possible to see joints in the circles where pressure can be applied to break the conundrum. Future industrialization is one problem, but more important, what short-run possibilities are there?

First, it is important to note that concrete evidence of Japanese developmental activities in Taiwan are intact and operational. The railways are running moderately well; power supply has passed prewar levels; the irrigation projects are gradually being rebuilt, too slowly now, but steadily; the ports are operating, inefficiently, perhaps, but operating. Such highways as there are are not much worse than before. In effect an established, functioning physical plant exists, though badly in need of rehabilitation.

Second, the people are reasonably well-fed relative to mainland standards. There is no food shortage, in fact there is a small surplus, although inflation makes urban living difficult. The disaffection resulting from high taxes and the early excesses of the Nationalists is an unfavorable psychological factor which has been balanced to some extent by the incentives offered through the rent reduction program.

Third, there has been a revitalization of farmers' associations under the supervision of JCRR, on a more democratic basis than under the Japanese.

Fourth, Japan is beginning to reach the point where it will be able to purchase larger quantities of Taiwan sugar, rice, and fruits (only if a large rice surplus is available and if the government permits it to be sold). Thus a fair market should be assured for the next few years.

What else, then, is needed to gather momentum? Two things: First, an intensive program of agricultural advice and reorganization. Yields must be raised. If they were now at prewar levels, even with the increased population, surpluses would be considerable. Second, a supply of capital with which to pay for fertilizers and other immediately necessary producers goods with which production can be raised. Since there is, for the reasons described above, no probability of accumulating and organizing real savings in Taiwan for the time being, this capital must come from the outside, and in fairly large quantities. This, it seems, can be arranged, but the capital injections must be at the most effective points, in agriculture and in those industries, such as fertilizers, which bear directly on agriculture.

In the case of a country like Taiwan, unlike food-deficit Java, for example, there is little need to pursue a multitude of developmental projects along a broad front, thereby distributing limited capital thinly. Where there already exists a "time cushion" in the form of a food surplus and where there are possibilities for increasing that surplus within a short period of time, then food production becomes the immediate and most efficacious area for concentration of capital and effort. In Taiwan the economy is stagnating, but there are immediate possibilities for extending the "time cushion" already existing by the immediate and concentrated devotion of skills and limited capital to agriculture, particularly agricultural products for export.

The diversification of the occupational structure of the country and the increased rationalization of resource use must proceed lest a period of further stagnation follow. But the pursuit of industrialization becomes less that of trailing a will-o'-wisp, if transition can be gradual without squeezing necessary savings out of a peasantry already living a marginal existence. The assumption derived from the Japanese experience is that in Taiwan concentration on agricultural development along lines already established will yield the greatest immediate economic as well as social benefits for the island population. A certain amount of the borrowed capital will have to go into transportation and power facilities in order to provide a secure basis for future expansion of light industry. Once some momentum has gathered, it is assumed that self-generation of capital will follow, at least during the "time-cushion" period. In any event, self-sufficiency cannot be a satisfactory goal, and both the immediate and distant future will find Taiwan adjusting its economic structure and orientation to the needs of world and regional markets.

There is, however, a "vicious circle" facing Taiwan today, but it exists in contexts other than the one assumed above. Taiwan's economy will continue to stagnate if the political climate of East Asia demands not only the maintenance but the expansion of political and military strength at the expense of

any other. Thus, the kinds of capital that are now available in Taiwan are earmarked in large part for military purposes. The paradox appears to be the following: Taiwan's position as a bastion against Communism depends on its re-establishing a sound and expanding export economy; but its chances of developing such an economy depend upon its curtailing military expenditures and utilizing economically the now ineffective manpower of 600,000 rapidly aging and unbelievably bored and homesick men.

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THE RATIONAL BIAS IN THE PERCEPTION OF CULTURAL DIFFERENCES

Any cultural group tends to assume that its ways and values are inherently right. Using their own ways as a standard, people find it easy to adjudge the practices of "outsiders" as peculiar, unreasonable, inadequate or inferior. By and large, we of the western world are no exception to this rule of ethnocentrism. There may be good and sufficient sociological explanations for the phenomenon of ethnocentrism. Among other things it is a mechanism for preserving the integrity of the group. By the same token, however, it can act as a barrier to intercultural understanding and consequently as an impediment to intercultural cooperation.

It is true that certain intellectual segments of our population have come to question the inherent rightness of our own ways. In good part, this sense of self criticism is a product of two interrelated features of recent Occidental history, the growth of science and the acceleration of cultural change. Rationalism and change are undermining the authority of tradition. At the same time, rationalism and change are becoming entrenched as cultural values in themselves. By appraising other cultures in terms of these values, we continue to follow the ethnocentric disposition to judge others in our own terms. Other peoples are deemed "backward" in the degree to which their culture is conservative and their behavior rests on nonrational premises.

The impulse to modernize the more "backward" sectors of the world's population may be laudable. These sectors need help and can benefit from our "know how." But our assistance is typically accompanied by the implicit assumption that the goals and methods suitable to ourselves are equally appropriate in other cultural contexts. To be sure, we are now aware that action programs are not to be imposed; the recipients must be motivated and involved. But too often participation on the local level is sought, not for the purpose of defining and planning objectives, but in order to implement objectives laid down in advance. We say: This is what should be done; how can you help in its accomplishment? Seldom do we say: We stand ready to help if we can; what kind of assistance do you need?

But assuming that a program is inaugurated, by whatever process of planning, complications due to cultural differences may arise. The aims and behavior of the action team are not likely to be taken at face value; rather the people in the community will make an interpretation consistent with their prior experiences, their hopes and fears, and their system of cultural understandings. They may suspect ulterior motives or hold unrealistic expectations. That is to say, the community will define the new situation in its own way.

The action team will also define the reaction of the community in its own way. Whether they are public health personnel or some other order of social engineers, members of the team perceive the world and define the situations they meet according to their own preconceptions. These preconceptions are

rooted in the subculture of the professional class. The problem of overcoming cultural differences applies not only in the case of a health mission operating in a foreign area, but also in the case of a team working in a community within its own country. The difference in the two cases is one of degree.

It is instructive to examine some of the preconceptions interfering with an objective appraisal of the community's behavior in relation to a public health program. Several of these assumptions are reflected in the connotations that cluster around such terms as backwardness, superstition, customs, education, and apathy.

Backwardness. We speak of underdeveloped areas or backward areas. Such references imply the feasibility of making relative ratings, and this can certainly be done in connection with certain social phenomena. Societies can be rated in terms of population, caloric intake, mortality rates, degree of industrialization and extent of scientific knowledge. More than anything else Americans think of technological level when they speak of backward areas. Since it is cumbersome to speak of "technologically backward people" we resort to contractions like "backward people" or "backward cultures." This abbreviation carries with it unfortunate implications. It permits the assumption that the people as a whole or their culture as a whole is backward. This evaluation is both erroneous and prejudicial to intercultural cooperation.

It is erroneous because it fails to take cognizance of the fact that cultures have qualitative as well as quantitative aspects. Styles, tastes, values, standards of conduct, codes of etiquette, esthetic modes, these all are cultural qualities that do not lend themselves to rating on a scale of higher-to-lower, more-to-less, better-to-worse, or any other unilinear scale. Cultures differ but this difference cannot be expressed on an evaluative scale, except in terms of an arbitrary criterion.

One can of course extend assistance to people judged as backward, but a patronizing attitude is not conducive to cooperation. The best way to win respect for a health program is to show respect for the people it serves.

Superstition. We incline to call certain beliefs and practices of unsophisticated peoples "superstitions." We are justified in doing so inasmuch as many folk customs are indeed premised on unreasonable logic. The designation "superstitious" is right as far as it goes, but it does not go far enough. It focuses on the cognitive component of human behavior and implies, with unwarranted optimism, that superstition can be dispelled by calling attention to the inadequacy of the reasoning implied in the belief. But preoccupation with the cognitive aspect of behavior distracts attention from an important range of nonrational motives entering into human behavior.

We assume that people base their actions on reasoning and that the remedy for erroneous action is to correct the erroneous reasoning. But the reverse of this proposition probably comes closer to the truth: People think the way they do because they behave the way they do, and their behavior is modeled on

the behavioral patterns of their culture. People rationalize more often than they reason.

We do not sufficiently realize that human actions serve more purposes than those avowed by the people who practice them. Indian peasants in Guatemala have the belief that a young person who walks immediately in front of an older person will age prematurely since he will contract some of the "age" of the older member. But this belief does not really derive its force from the misconceived reasoning allegedly underlying the behavior or the proscription of behavior. The fact is that the avowed reason overlies rather than underlies the behavioral proscription. Local etiquette dictates that juniors should cede precedence to seniors. The rules of etiquette support an exceedingly important principle of social organization, namely, that social status depends not on class or achievement but on relative age.

The viability of the aging superstition does not depend on ignorance, as might be supposed by an inquirer who asks why children should not walk ahead of adults and receives the explanation, given in good faith, that the children would grow old too quickly. Rather its vitality depends on the function it serves; it is one among many props that maintain the social order. It should be no surprise if the Guatemalan aging superstition persisted despite efforts by an outsider to attack its logical basis.

Another reason why superstitions are not readily banished by intellectualistic persuasion is that the mystical thinking on which their rationalization rests is often part of a general disposition pervading the world view of a given society. Each magical belief or practice is only an explicit and visible instance of an implicit philosophy which resides below the threshold of awareness where it is not open to examination and challenge. The assumption of mystical causation is manifested in and supported by a great array of beliefs, acts and events. Attacking any given item of superstition does not seriously attack the un verbalized proposition in which it is rooted. Implicit assumptions are not immutable; they are part of culture and culture is always undergoing change. But the change in a people's world view proceeds slowly, especially if there is no dramatic alteration in their socio-economic environment.

Another source of sustenance for superstitious practices is the role they often play in allaying anxiety. Extreme uncertainty can arouse unbearable distress, creating a demand for a ritual or formula that will influence the course of events. Cases in point are the superstitions of gamblers or those of men in combat. The controlling factor is not the intelligence of the men but the severity of the hazards they face. It is characteristic of cultures that they provide formulas for reducing anxiety and define the situations for which these formulas are appropriate. So long as men must face emergencies beyond their capacity to control they will seek "solutions" that are magical or mystical or in some other way "unreasonable." In the long run the most successful attack on superstition is the indirect attack on the uncertainties of life that nourish superstitious credulity.

Now a health program strikes at the uncertainties of death and disease, and it may seem ironical that the dissemination of improved medical practices should be impeded precisely by those superstitions (among others) that owe their vitality to the hazards of life deriving from inadequacies of medical knowledge. But faith is strong where risks are great and people act slowly when it comes to shifting their faith from a familiar system of security to an unfamiliar one, however efficacious the new system may prove to be in the long run. It should not be overlooked that faith gives psychological security, whether faith is placed in magic, religion or science.

In most general terms, the major objection to the term "superstition" is that it implies a distorted conception of the role of rational thinking in human behavior. Man is a reasoning animal. But from this it does not follow that the ways and institutions that comprise his culture are predominantly the products of deliberation and conscious decision. The people of any society engage in thinking and arrive at conclusions. But thinking proceeds on premises. And different cultures supply different premises. Behavior in any society is rational in some ways and nonrational in others. By fixing on superstitions we exaggerate the irrational element in other cultures and overestimate the rational element in our own. This distortion stands in the way of gaining a good appreciation of the other person's point of view. Lack of such appreciation acts as a bar to the mutual confidence upon which intergroup collaboration best proceeds.

Customs. We know that customs exist and that they vary. But we tend to assume that customs are forces that collide and interfere with intelligent self-directed behavior; that the ideal society would be one that is swept clean of the cobwebs of custom; that the less enlightened peoples of the globe have more customs and are more subject to their influence. These assumptions rest on a misconception concerning the nature of culture.

A culture is more than a collection of customs; it is a system of customs, each more or less meaningfully related to the others. Culture has structure as well as content. Recognition of this fact would enable us to understand the tenacity of certain customs; they are hard to move because they are geared to other customs. It would alert us to the possibility that changes effected in one aspect of culture can bring about unexpected repercussions elsewhere in the cultural system. It would allow us to perceive that the well being of the individual depends, not on his freedom from cultural conventions, but on the degree of consistency obtaining between the components of the cultural system in which he is involved.

The cultural system does limit the range of individual behavior and in this sense customs exert a restraining influence. Culture defines the values men hold, the goals they seek, the means they use. By thus organizing their outlook, culture is also a guide to action, a positive force that channels motivation and imparts meaning to existence. We are too inclined to perceive the negative and overlook the positive when we behold the customs of others.

Naively we may cherish the illusion that custom plays only a slight part in shaping our motives and decisions. This view is encouraged by the accent we place on individualism.⁽¹⁾ But individualism is itself a basic value of our culture. It is, so to speak, an American custom. (As a matter of fact, in the eyes of foreign observers Americans conform to type no less than foreigners do in the eyes of Americans.) Science may have weaned us from certain customs but this is not to say that we now have fewer customs than before. We have changed our spots, not shed them; we have scientific customs along with others. Sophistication does not free us from cultural norms; it substitutes cityways for folkways. Similarly, a program of health education does not eradicate customs; at the best it replaces old customs with new ones.

Education. Education lies at the core of a community health project or any other program of directed culture change. Not incorrectly, education is conceived as the transmission of information. It is now realized that the choice of channels through which information is disseminated bears critically on the success of an educational campaign. Advice routed through meaningful personal contact is more influential than advice conveyed through impersonal media; discussion and participation are more effective than speeches and exhortations. Sensitivity to the nature of the communication network is all to the good. But as yet, educators are only dimly aware of the process by which information is assimilated in the minds of the educational targets.

Clearly people do not automatically incorporate whatever information comes their way. This observation is commonly interpreted to mean that learning takes place slowly, that the percolation process takes time. It is recognized that all normal people possess some knowledge, but if they are in need of indoctrination it is because they do not have enough information. It is as though they had certain empty spaces in their mental storehouse and the task were one of insinuating the necessary facts into unfilled minds. People need information because they are "uninformed." Essentially the educational process is conceived as an incremental one.

To be sure, people do acquire information, and knowledge can be cumulative. But learning is more than an additive process, it is more than the building up of content. It involves integration as well. The mind not only receives ideas, it also organizes them into a system. New information is inert unless it is understood and it can only be understood when it is fitted into the pre-existing idea system. Ideas that do not fit are either ignored or suitably reinterpreted.

People who have shared the same experiences or who have a common cultural background tend to have similar idea systems; they think in parallel terms and they interpret happenings in

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- (1) The philosophy of individualism achieves its fullest realization in the clinical and case work approach where stress falls on those features or circumstances which distinguish one individual from all others. The acuteness of the focus obscures the perception of ethnic and other group characteristics.

similar ways. Communication between such people is rapid and economical; their minds are more or less in resonance. This is not the case when members of different cultures or subcultures enter into communication. Each reinterprets the ideas of the other in accordance with his mental set. This is why anthropologists seek to live in intimate contact and for a long period of time with the people they wish to understand. They do this not only because there are numerous observations to record in an unknown culture and not only because they want to gain the confidence of their subjects, but also because they want to share enough experiences with the people to get a fair approximation of the way they think and feel.

The health educator who approaches his assignment with the preconception that education is a matter of conveying information to people who are "uninformed" stands in danger of concluding that the slow penetration of his propaganda signifies intellectual deficiency or wilful behavior on the part of those he seeks to benefit. It is more useful to take the position that the people are already "informed." According to their cultural lights, they already "know" a good deal about the causes of illness and the kinds of treatment to be sought. From this standpoint the problem is not merely one of injecting new concepts into a mental vacuum, but one of helping the people reorganize their existing conceptual system. So conceived, the educational task is really that of re-education. New knowledge is not just supplementary; it is reshaped to accord with pre-existing mental configurations, but in the process of accommodation the old orientation is somewhat shifted.

Knowledge of the local belief and motivation system enables the imaginative educator to present his data in such order and in such a way as to be most readily grasped by the recipients. It also enables him to anticipate the directions that "misunderstanding" will take.

The way in which old conceptions affect new ideas is illustrated by the case of a well educated American Indian who served in World War II. In accordance with the dictates of his culture he "knew" that witchcraft was an important source of illness. In the army he learned about germs and their role in disease communication. Nevertheless on returning home he continued to give credence to the power of witchcraft even in the case of a communicable disease. This was not because he abandoned his belief in germ etiology. Germs are everywhere, he reasoned, yet only some individuals become susceptible. Why should this be? His answer was the witchcraft could so weaken a person's resistance as to leave him vulnerable to germs. His accommodation of the old and the new was to assign natural agents to the service of supernatural forces.

May we not find similar types of accommodation among ourselves? May not the victims of a dreaded ailment accept the principle of natural causation and still ask themselves why they, and not others, should suffer? May their anxiety not mobilize a sense of misgiving and inform their inner self that fate is making them pay the price for some real or fancied infraction of the moral code? And may not this impair the course of their treatment?

Apathy. Action programs occasionally encounter active opposition, but more commonly the difficulty is insufficient interest. We have handy words like "indifference" or "apathy" to describe this circumstance. Apathy, however, is a negative term; like the word "lazy" it states what is not happening. But negative labels are not productive of insight; they tend to obscure the positive, more dynamic, factors that contribute to inactivity. They are like the term "white" which popularly denies the absence of color but which in fact is the presence of many colors.

Take the example of a program of preventive medicine. Let us say it aims to teach well people how to stay well and to have people report for examination before they become acutely sick. Let us add that the community exhibits apathy toward the doctrine of prevention; its members are stirred only when they are struck by severe illness. What motives does this apathy conceal?

George Foster has enumerated some of the motives in his survey of selected health centers in Latin America. These include distrust, conviction that doctors are incapable of curing certain classes of ailments, inconvenience, resentment of censure for failing to abide by schedules and routines, apprehensions about the harmful effects of extracting blood samples, and shameful attitudes surrounding the admission of being weak enough to succumb to sickness.

But perhaps the most illuminating factor contributing to apathy is the difference in the definitions of health and illness held by the medical agency on the one hand and the community on the other. The medical team proceeds on the assumption that good health is something positive to be maintained by positive measures; illness is the absence of health. But the community goes on the assumption that disease is something positive, that it is the presence of something bad; health is the absence of sickness. In this view "there is very little a well person can or ought to do keep himself well" (Foster). There may also be a conception that good health is good fortune and that one should leave well enough alone; one tampers with fate when one presumes to question a satisfactory state of affairs. It is probable that similar assumptions are made by many people in our own society, and that these assumptions similarly impede the adoption of a "preventive attitude."

Summary. Our rationalistic bias leads us to classify people as "reasonable" or "unreasonable." But people are neither reasonable nor unreasonable in the abstract. By their own cultural standards their behavior and beliefs are reasonable, by the standards of others they are often unreasonable. To alter their point of view it is helpful to understand their point of view.

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SOME COMMENTS ON DR. GADGIL'S NOTES*

It is a tribute to the broad tolerance of India's new democracy that so severe and eloquent a critic of Government of India policies as Dr. Gadgil should be allowed to publish so widely and speak so freely. Yet for the future of India it is unfortunate that so many of its most able economists, conditioned by long years of bitter opposition to the British, should have developed so contentious an attitude toward the state that they can do nothing but criticize and prefer to sit on the sidelines in contemptuous disdain rather than lend their real talents to the many constructive efforts currently under way.

So vast has been the literary output of India's own critics that the sector of American intellectual opinion concerned with development problems in general and India specifically, must, by now, have gotten the impression that the Government of India is at best hopelessly incompetent and at worst is deliberately encouraging exploitation, having propagated an unspeakable five-year plan designed not to raise the level of economic subsistence but to benefit India's fortunate few by further state-sponsored aggrandizement. It seems to this observer high time that someone voiced objection to this kind of unuseful analysis of the Indian scene exemplified by Dr. Gadgil's otherwise lucid and persuasive notes.

Basically, Dr. Gadgil's real quarrel is not with the Plan itself but with the present economic and social structure of India. He favors nationalization and socialization of the means of production and marketing. This would involve remaking the Indian economy and in the process more production, desperately needed now, would probably be lost than gained. The Plan, on the other hand, realistically accepts the present Indian mixed economy and attempts to build upon it. Dr. Gadgil would have been much more forthright and more clearly understood by his American audience if he had come right out and said "The Plan accepts a mixed economy. I think India requires nationalization. Therefore the Plan is unacceptable." Then one could have debated and analyzed the issue on its merits. The real question would become not whether the Plan is adequate or inadequate, but whether in the given state of Indian economic development and in the light of the whole complex economic environment in Asia, the growth of the Indian economy would be best served by nationalization of production and marketing facilities. This is quite a different matter from whether or not the Plan is competently drawn. To beat the authors of the Plan over the head for not doing what they never set out to do, and what in the opinion of many other observers, including this one, they should not attempt to do, namely, recast the Indian economy along socialist lines, is to becloud the issue.

*The remarks in this Appendix refer to D. R. Gadgil's "Notes on the Government of India's First Five Year Plan: July 1951," published in No. 1 of this journal, pp. 57-72.

This leads to a second basic premise of Dr. Gadgil's which for the enlightenment of his American audience he should have made explicit. If the Plan were redrafted to take his criticisms into account, such a revision would provide for practically complete government control of the economy and indirectly for government operation of many of its basic sectors. Again this raises an issue, apart from the merits of the present plan, which may need to be debated and carefully considered. Given the present limited number of competent Indian government administrators, and the vast complexity of its economic needs and problems, would there be a net gain to Indian economic development by imposing great additional burdens upon this thin core of trained bureaucrats or would further stagnation result? Again, many observers, including this one, think the latter would be the case. Already there is a great complaint about bureaucratic delays in Delhi retarding development projects in the field and in many instances the government has had to call in private enterprise to help it operate government projects. It is the Tata's, for example, who are responsible for the efficient operation of Air India.

In this connection Dr. Gadgil sins by omission. He criticizes the government for granting tax concessions to stimulate domestic private investment and criticizes the industrialists for accepting these tax concessions but not investing. He neglects to mention that it has been largely the threat of nationalization over the past five or six years which has created such an adverse climate for the further development of private enterprise in India that it is surprising that there is any new private investment at all. There is so strong a socialist trend of thought in India that the dim future of private enterprise tends to freeze private investment and one could debate with Dr. Gadgil whether instead of passing a compromise Industries Control Bill the Government of India would not have furthered the economic growth and development of India more by guaranteeing the integrity of both capital and profits of the industrialists and thereby creating an atmosphere favorable to industrial expansion. One could argue quite seriously that what India needs for capital-formation purposes, and for the efficient application of the capital so accumulated, is an extension of the Zaibatsu-type of private industrial oligarchy which did so much to bring about the industrialization of Japan with so little in so short a time.

In yet another respect Dr. Gadgil is not fair to his American audience. He fails to point out that the present Five Year Plan is only tentative, that it is being reworked, that it was in its original form twice as big as the plan which he now criticizes for not doing enough, but that in view of India's limited financial resources, and a realistic appraisal of what it could obtain abroad, the Plan had to be reduced drastically to the considerable unhappiness of its Indian drafters. Originally a development program calling for the expenditure of Rs. 31 billion was drafted for inclusion in the Colombo Plan, but a survey of availability of financial resources indicated that this figure was so far in excess of what could actually be expected to be forthcoming that the Plan was cut down to financial size--to Rs. 17 billion, and even this lower figure had to be divided into two parts. The first, amounting to some Rs. 14 billion, was what actually could be financed from resources in

hand; the second part, the remaining Rs. 3 billion, consisted of projects which would be undertaken if additional external financial assistance were forthcoming.

"It is not clear," Dr. Gadgil states, "how the list of irrigation and power schemes included in the plan was made up." For the first part of the plan--the Rs. 14 billion--the list consisted of those projects actually initiated, on the very good logic that what was started should be finished before any new projects were undertaken. Dr. Gadgil's vague theorizing on this point gives the reader the impression that the Government of India selected the projects in a haphazard fashion. More basically, however, nowhere does Dr. Gadgil even consider, much less face up to, the financial limitations under which Indian planners of necessity must work. Sitting in his clay tower in Poona, he can well be sarcastic and loquacious and bitter because Indian planners did not propose to control and nationalize everything, because this was a limited plan, admittedly a minimum plan for which they had to cut the cloth to fit the measure, but if he were in Delhi, in the Planning Commission in daily contact with the Ministry of finance, he would whistle a very different tune. The great defect of Indian planning until this Five Year Plan had been its utter inability to come down to earth, to face financial reality, and to devise a plan which, though it offered only limited improvement, could actually be carried out. Again in criticizing the Plan, Dr. Gadgil should have made explicit that he was putting financial considerations aside. It makes a very big difference whether you want a fine, big, all-encompassing plan which you cannot possibly carry out or a more limited one which has at least some small chance of attainment.

Dr. Gadgil's pursuit of criticism for criticism's sake leads him to some astounding statements. On page 60, for example, he declares: "it is thus surprising that in spite of the favorable conditions for the production of basic materials such as pig iron and steel, no large planned provision is made for their expansion. Thus, apart from the details of the place of industrial development, the relative weight attached, in the Plan, to agricultural and industrial investment, is itself difficult to appreciate."

It is indeed surprising that Dr. Gadgil can understand neither the reasons for the emphasis on agricultural as against industrial development in the Plan nor the merits of leaving industrial development largely to the private sector. To this observer both decisions are so right and so logical that it is difficult to comprehend the failure of so eminent an Indian economist as Dr. Gadgil to perceive the reasoning. He must know that India's most pressing problem is feeding its population; that famine habitually stalks the land; that there was a direct correlation between hunger and the popularity of Communism in the recent elections; that India spends \$500 million of its foreign exchange a year simply to buy food; that Indian yields are so low that a minimum investment in the agricultural sector will yield a maximum return as compared to any other sector; that if the Government does not use its limited funds in the agricultural sector profit possibilities are such that no one else will provide the funds for agricultural improvement; that on the contrary most industrial projects are bankable and, given a favor-

able climate for investment, private funds will expand this sector; that if India, by increasing domestic food output, can be relieved of the burden of food imports a very large volume of foreign exchange will become available for the purchase of capital equipment for industrial development, and thus that funds spent initially for agricultural development will in due course make possible further industrial expansion; that funds spent in the agricultural sector primarily to raise yields will benefit a much larger number of Indians initially than comparable sums spent on industrial projects; that if funds are limited first things come first and if the industrial sector can be developed with private funds then so much the better since this allows limited public funds to be concentrated on the agricultural sector.

In examining the social implications of the plan Dr. Gadgil argues that it will make the rich richer and by implication the poor poorer. Reasoning from the statement that: "it should be noted that public investment in the Five Year Plan is largely concentrated in irrigation projects and that the direct effect of these irrigation projects will be confined to very limited areas," he then declares: "In these limited areas the major benefits will be derived by a comparatively small number of specially advantaged people" by which he means those who handle the marketing and processing activities, and then he concludes: "In the agricultural sector, therefore, it [the Plan] can be said entirely to ignore social objectives and to be content with the continued operation of present trends which make for increased inequalities of distribution."

Putting Dr. Gadgil's argument in an American context, he is saying that a development plan for the United States which placed major emphasis on river valley projects such as the TVA, Grand Coulee, Bonneville, etc., is anti-social because (a) these projects are confined to very limited areas, (b) the only ones who will benefit from them are the middlemen who will market the output of the new producers, and (c) thus such river valley projects "make for increased inequalities of distribution." This is such extraordinary reasoning and the illogic so apparent in terms of what actually happens to an area and to a country as a whole from the successful development of a river valley that elaborate argument is unnecessary.

Yet surely Dr. Gadgil is aware that the Plan places considerable emphasis on the need for increased equality in distribution in the agricultural sector; that it proposes explicitly that all farms above a specified size be registered with the government and that all registered farms be subject to regulation; that the money incomes of agriculturalists be stabilized by government procurement of food grains at fixed prices; that the cooperative movement in agriculture, though admittedly it has not yet made any significant change in the economic environment, is making steady progress and is now being greatly stimulated and encouraged by the government; that the intensive area approach is the latest trend in rural development and by enabling the marshalling of adequate resources of manpower, technical knowledge and capital for the optimum development of a careful and well dispersed selection of areas in different parts of the country (instead of spreading the effort thinly over the whole vast country) is likely to achieve the benefits

of concentrated action rather than the futilities of dissipated, diffused, and therefore ineffective, effort. He must be aware, too, of the land reform legislation on the statute books in most states and of the Plan's recommendations that these laws be steadily and systematically enforced, and that the laws passed to safeguard the tenant cultivator against the absentee landlord, and those laws intended to protect the peasant by regulating the operations of the money lender, and others providing for the reduction or cancellation of rural debt, and the laws designed to prevent the alienation of land to non-cultivators, all be vigorously enforced. How, then, can Dr. Gadgil say that in the agricultural sector the Plan entirely ignores social objectives?

The use of the electric power to be generated by such projects troubles Dr. Gadgil no end. At one point he says it is being generated in empty areas where there is no demand for it. By implication Grand Coulee should have been located near Detroit. But then elsewhere he argues that the power will be siphoned off to large industrial centers and thus cause further industrial concentration in these large centers which he argues is bad for social reasons. Just why part of Damodar's power should not be diverted to mills in and around Calcutta which need it, is not clear except on social grounds. Then Dr. Gadgil contends that: "It is notorious that in the absence of regulation, or direction, private enterprise naturally prefers locations in the biggest centers, and that the private entrepreneur class, as whole, never undertakes deliberate development of backward areas, as from their point of view the returns to the private investor in these cases are ordinarily not attractive." While it is true that there has been a disproportionately large concentration of industry around Bombay and Calcutta, never is a very strong word. What about Tata at Jamshedpur, and the Textile Machinery Corporation at Gwalior, and Hindustan Motors in Baroda, and the machine tool plants at Satara, Harihar, Batala, and Ludhiana, and Hindustan bicycles at Patna, etc.

Innumerable are the smaller points on which Dr. Gadgil could be challenged. One example may suffice. Dr. Gadgil states: "Since 1947, the Indian government has deliberately followed an opposite (inflationary) policy. It has granted an increase in prices wherever a plausible case could be made for such a case." In contrast, a recent issue of the London Economist headlined a New Delhi despatch, "Delhi faces economic facts--consistent policy of deflation," declaring: "In general, the government has since last year pursued a policy which has been consistently deflationary. It has produced a large budget surplus, raised the bank rate, stopped the Reserve Bank buying government securities at fixed rates, and tightened private bank credit, all at a time when industrial production and the output of cash crops has been rising. These are bold and realistic policies, which suggest that the administration in Delhi is prepared to face economic realities with skill and determination, in spite of pressures from both the business Right and the political Left." (1) Again, obviously, the black of Dr. Gadgil's pen does the Government of India an injustice. But perhaps the most unfair indictment is the sweeping generalized conclusion that:

(1) London Economist, April 5, 1952, pp. 13-14.

"The Plan effectively ignores all problems of social policy and does not elaborate or even deal adequately with the problems of price policy which are supposed to be the main operative instrument. Thus in all important respects, in coverage, in concreteness and in degree of integration it falls far short of what may properly be expected of a plan of economic development."

It simply is not true to say that the plan effectively ignores all problems of social policy. You cannot decentralize all existing Indian industry in five years; you cannot rehouse all Indian urban workers and eliminate slums in five years; you cannot educate every Indian, putting all through universities, in five years; you cannot give every farmer ten acres in five years; you cannot buy out all the landlords in five years; you cannot train enough honest, efficient government administrators in five years to do even half the things Dr. Gadgil would have them do. The Plan attempts a beginning in all these fields, but it is primarily a production plan because production is where you begin; it is the vital need; the key to further progress. Unless you can produce much more food, much more steel, much more cloth, etc., you cannot equitably distribute income in Indian society because there is not enough to distribute. Level every Indian millionaire to the rank of untouchable, distribute all wealth of over 100 rupees, and you get a per capita increase in static living standards of less than one per cent, and dynamically you get chaos. The only real way to benefit the Indian masses is to raise output and this the Plan is designed to do. There is little danger that, with the tremendous leveling influences at work in Indian society today, distribution will be anything but equitable. The real peril is that these influences, in the overzealousness to do everything at once, which Dr. Gadgil typifies, will nullify present efforts to expand output and bring on the economic stagnation which may topple India into the Communist camp.

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SOCIAL CHANGE IN AN INDIAN VILLAGE*

The focal village of Paril was selected to represent the social structure of a Hindu agricultural community in full complexity (see First Quarterly Report). Paril is both large and complex. It has 160 houses and about 850 residents, to be compared with the U.P. average of 527 persons per village. Among Paril's twenty-three castes, the largest are, in order: Brahmans, Chamars, Jats, Kumhars, and Muslim Faqirs--all large and common castes of the district and province. Essential servant, commercial and artisan castes are well represented; they serve the specialized needs of many nearby villages in addition to Paril's. From his office here, a government accountant (patu-ari) does the land recording work of six other villages. Landlord rights (zemindari) are held mainly by Jats who reside both in the village and outside, although a total of four lineages in three castes hold shares. Six households in the village derive some income from zemindari, some in Paril, some elsewhere. Since a conservative village was desired, it seemed appropriate that both tenancy and zemindari rights should be concentrated in the top few casts as they are in Paril. Such a high correlation of landed wealth and caste standing is almost universal in the district and province. (1)

Paril was also selected because it lies in a representative rural region. The region surrounding Paril for several miles shows a normal range of large and small villages, of large and small numbers of castes and specialized services. Paril itself, however, stands near one end of the normal ranges in three related respects: size, complexity and importance of landed interests. It is twice as large as nine out of ten other villages. It has many more castes and a more complex division of labor than nineteen out of twenty other villages. Its population of many castes contrasts sharply with those other smaller villages--perhaps one in five--which have but a single caste of residents. And probably no more than half the villages of U.P. have resident zemindars, as does Paril.

All of these exceptional features are, however, ordinary and representative correlates of normal complexity, a feature which is expressly desirable in material for intensive explor-

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(1) This is not true in all parts of India.

atory study. If Paril is a minor center dominating its neighbors, then it leads to understanding of supra-local structures. If it is larger and more complex than its neighbors, then it may exhibit more of the whole variety of social features to be found in the region. But the smaller villages filling out the averages and presenting so many contrasts, also invite direct attention.

Paril, together with its neighboring villages, was chosen, too, as representing an average economic situation. Aligarh District in this northwestern corner of U.P. has more canal irrigation and is otherwise more advanced than most of the state and most of India. Paril, however, is six miles from a canal. It lies in a poorer, less irrigated tract of land. Still in Paril individual holdings are larger, crop yields per acre greater by far than the Indian averages. The social implications of this superior economic situation can only be estimated by comparisons more extensive than this study will allow.

Paril in the Past: A Reconstruction of Paril Society 30 Years Ago

The year 1920, approximately thirty years ago, is chosen as a convenient base mark for reconstructing social structure and other social behavior in Paril. Thirty years is convenient because it falls within easy memory of elder persons, and within the time range of many official documents and descriptions of this and other villages not far away. Thirty years also encompasses a number of known and appreciable alterations of Paril's social structure.

Solidary groupings in Paril thirty years ago may be listed under the four learge headings of (a) kinship, (b) rank, (c) economic, and (d) associational structures. Certain other social behavior will be summarized in connection with each classification of solidary groupings.

(a) Kinship groupings included about 100 families containing on the average a little more than five persons each. These 100 families, or 525 persons, were divided into about 55 lineages--patrilocal groups of common descent traceable in the male line. The lineages were in turn members of 35 clans (kunba, khandan) of thirty different phratries (gotra). Lineages, clans, and phratries were, with no more than two or three exceptions, exclusively local as operating groups.

All of the reticulate units of male descent, being exogamous with respect to the village, had necessary ties with clans and lineages in other villages. Marriage ties ran on the average to a distance of ten or twelve miles. Since all descent groups were further divided into 23 endogamous castes, their marital ties, though coinciding occasionally in the same distant villages, were wholly divided in actual relationship into 23 distinct marriage groups. Paril's own resident caste groups varied in size from one family to about 30 families, the average caste comprising about four families. Each resident cluster of families of a single caste belonged, however, to a vast regional assembly of families linked by name, marriage, and traditions.

Families that were parts of the same lineage usually cultivated jointly any lands which their members held as tenants. Such lineages were small units averaging only two families in size. Families of different lineages in the same clans carried on frequent but less intense cooperation, lending and selling to one another. Loyalty, some sharing of resources and common action were expected in case of crucial need by a clan member. Phratry had active meaning outside Paril only for the Jat zemindars, as an aristocratic dynasty.

Castes, and also some of the largest clans, had their internal councils, informal in membership, to decide internal quarrels. Their decisions were not always effective. For the same purpose, several of the lower caste groups sent representatives to regional caste councils which might be either formal or informal in constitution. Outside the village the strongest ties of almost all families were caste-fellows--their relatives by marriage. Between such relatives there were frequent and lengthy visits as well as large gifts and purchases. Castes and clans were repositories of distinctive cultural traits, the traits being sometimes connected with their traditional occupations or ritual duties.

(b) Rank groupings thirty years ago corresponded closely with the largest kinship units of clan and caste. Castes were placed with nearly perfect agreement (by informants) in five or six major groups of castes which may be called "orders", and these orders were ranked with perfect consensus in relation to one another. Within an order there was less perfect agreement on the ranking of particular castes, and smaller units. Here age, power, wealth, and family morality came into play. Power and wealth were strongly correlated with the ranking of castes and orders, however, since most land rights lay with four or five high castes. Whatever differences there may have been in individual judgments, these could have little effect on public behavior. Gestures of precedence and deference rules for the handling of food and water, smoking and sitting arrangements, terms of address--all of these followed the arrangement of orders very closely.

(c) Economic groupings could be classified in three types:
(i) work groups, (ii) dependencies, and (iii) classes.

(i) Work groups were small, since cultivation of Paril's crops required the labor of only two men and a boy for even the most elaborate operation. One or two families, related as lineage brothers or as master and servant, could supply all the labor needed for an average holding.

(ii) Economic dependencies constituted much larger groupings, each cutting across kinship and rank groupings, and focusing upon a few persons of wealth and power. Such groups of dependents were not on the whole cooperative groups, but rather consisted of clusters of concentric pair-relations. They had to do with land, credit, and service.

For access to an adequate holding of land, the cultivator was dependent on an unwritten short-term lease granted by one of three families of a single lineage of zemindars. Zemindars granted lands to only about 40 tenants, keeping more than one-

fifth of the total lands for their own cultivation through laborers. The thirty families of laborers having one bullock or none worked year after year for the same zemindar, to whom they were often deeply indebted. For credit in money or grain, borrowers--including most persons in the village--turned to zemindars, to wealthier tenants, or to professional lenders both in the village and outside. Since interest rates were high, such relationships once begun were not easily broken off; the mortgaging of one crop could barely finance the cultivation of the next.

Specialized servants and artisans, forming another third of Paril's population, were likewise bound closely to their employers, frequently indebted to the more powerful of these. Such servants took payment mainly in foodstuffs, each taking from the families forming his hereditary clientele (jajmani).

(2) The clienteles of some of these servants coincided with the groups of tenants and laborers dependent on a given zemindar. The clienteles of other servants, however, since they served from three to ten other villages outside Paril, were not so exclusively aligned with any one local segment of economic dependents.

Zemindars and a few others had permanent groups of dependent followers in all ranks and kin groups. Zemindars, as collectors of land taxes for the government, were always given the office of police agent (mukhya). This combination of powers delegated by government and by their followers allowed the zemindars to arbitrate and dispute and to punish summarily any petty crime, real or suspected. Village disputes could generally reach formal trial only when the case was taken out of court by or with the help of one of the zemindars or bigger tenants.

(iii) Economic class groupings were most effective among the zemindars, to a much lesser extent among the wealthier tenants, and not at all among the rest of the society.

(d) Associational or convivial groupings were small and impermanent. On three or four days of the year the whole village gathered, but most of these were occasions for an audience to watch rather than for mutual interaction. The one exception was Holi, when there was a general ceremonial breaking of group barriers. On Holi and for a month before, the only formal convivial group, a singing society, joined members of several castes in an activity of common interest. Other associations were informal and irregular. Children's play and to some extent women's visiting follow neighborhood patterns. Certain sports were occasions allowing participation of boys of all castes for a few days of the year. Marriages brought larger random assortments of friends and neighbors together for a few daily rituals. But rules of rank as between the six orders and

(2) Jajmani system: an old Hindu system of non-commercial "economic" relations between members of a village, binding people in terms of status, custom and religious sanction to the performance of certain customary services for their client or patron. See W. Wiser, The Hindu Jajmani System, for the best description available in English.

23 castes prohibited many kinds of public reciprocity among friends. Arrangements by which all orders could dine at one house--at separate times and places--were found only at the feasts of the highest persons, occasions of great expense and rarity.

Alterations in Social Structure
Effected in Thirty Years

(a) Past alterations--(1) Economic developments in Paril and outside over the past thirty years have been responsible for numerous changes in solidary groupings.

A near doubling of population stimulated more extensive and intensive use of Paril's land for agriculture. Pasture and forest wastes, constituting one-tenth of the village lands, once had been held for common use by the zemindar. Now they have been parcelled out to fields. This has lessened the value of the landlord's bounty (3) and enhanced the value of competition for private access to scarce lands.

Increased pressure on local lands has brought about an increase in the number of groups in the village whose members have dispersed to the outside urban world. One or two persons of almost every clan have joined with outsiders to earn a living instead of staying to work with kinsmen and neighbors.

The world depression brought a period of lowered crop prices (4) and an increase of debt in Paril. Two families of zemindars were themselves bankrupted. Nearly half of Paril's zemindari rights changed hands, one part going to a local money lender, another to an outside Jat (5) clan.

Despite the general regressive movement of Paril's internal economy, with much more competition for nearly static resources, there began ten years ago an enormous increase in the prices paid on outside markets for the crops grown by people in Paril. The huge increase of money in the hands of tenants has unbound many of the dependencies on lenders that existed in the past. Laborers, their wages rising, were released from the debts that kept them in the exclusive charge of one master. The rise in crop prices has also left more food with more cultivators; many can now give the expensive feasts and ceremonies which once symbolized the status of the few wealthiest persons in the village. Feasts demonstrate the power of the feeder to his neighbors and relatives, and strengthen cooperative friendly relations across rank lines.

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- (3) The rents received by the landlord have, of course, been increased by this process. Its effect has also been to reduce the area available to the ryot for grazing, for the collection of firewood, waste products, etc.
- (4) Indian crop prices fell by about 60% in the first two years of the world depression while rural debt doubles.
- (5) Jats are members of a hereditary petty aristocracy among north India landholders.

(ii) Tenancy Laws, notably the Agra Tenancy Act of 1926 and the U.P. Tenancy Act of 1939, have steadily broadened the distribution of wealth and power in Paril.

Tenants and sub-tenants (generally sharecroppers) long in occupancy of the same lands, were given permanent, even hereditary rights where previously they could have been ejected at the pleasure of the zemindar or superior tenant. (6) The writing of deeds and receipts has encouraged formal subdivision and registration of lands previously held loosely in common by whole lineages of families. Not only has the number and formality of work groups increased but their size has, if anything, decreased in response to the fall in holding size from eleven to nine acres on the average. Moreover, nine new lineages have settled in Paril to take up permanent land rights gained through relatives by marriage. This increases the differentiation of kin groups by nearly 20%.

Zemindars' private lands have been slowly diminished and all rents limited by law. Closely controlled groups of landlords' followers have ceased to exist as an inclusive type of solidary grouping in Paril. There now remains but a single tenant-at-will of one zemindar. Because of the threat of their securing permanent tenancy, sub-tenants and tenants-at-will are shifted with greatly increased frequency. (7)

(iii) Legislation and administrative measures for social welfare have had light effects. Usury has been limited and the professional lender has nearly disappeared. More provision of cheap education and special political patronage of the lowest castes has placed in favorable relations with higher outside organizations people who otherwise stand at the bottom of village society.

(iv) Political changes in the larger society, especially the paraphernalia of limited democracy--elections, appointment of an advisory panchayat and of a local rationing board--these have encouraged persons of local power to align themselves with the powers of other villages in the area and with the dominant party in fairly permanent informal organizations for mutual aid.

(b) Current alterations.--The time of my field research in Paril spans the early stages of three new government measures which are effecting a slightly broader and different organization of wealth and power. All three are conceived by their authors as leading toward a more qualitarian and democratic social structure.

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- (6) This may have worked well in Paril but the results of this legislation were generally meagre in the United Provinces (now Uttar Pradesh State) and the number of tenants who actually secured permanent rights remained relatively small.
- (7) This has been a favorite technique used by zamindars to prevent their tenants from securing permanent tenancy rights.

(1) The U.P. Panchayat Raj Act, designed to restore village political life to its "original" state of "Athenian democracy" was promulgated about three years ago. Panchayats were elected and had been operating for more than a year before the beginning of this field research.

The village assembly (gram sabha) and village council (gaon panchayat) set up under this law are larger and more localized interest groups than have ever existed before in Paril. The assembly includes Paril with two smaller villages in membership of 1300 persons. The council is a committee of 15 to 20 persons, given responsibility for village welfare. The council has also been given several minor powers and duties formerly belonging to the police, to the police agent, to the earlier appointed panchayat, and to other higher authorities. The council has the power to give formal legal trial to minor disputes and to collect a tax. Persons elected to the village council in the first election include members of most of the large castes in Paril, along with a strong majority of large tenants and higher caste persons.

The rural court (adalti panchayat), with 25 elected members, represents and has jurisdiction over 20 villages. It can give legal trial to disputes of larger consequence than can a village council, and can levy larger fines. Elections to the rural court were held before the plans for zemindari abolition act had become widely known. Almost every member of Paril's rural court is a zemindar, and the weekly meetings of the court at a Zemindar's house constitute a new formal convivial occasion, strengthening the supra-local class solidarity of the zemindars. It is to be noted, however, that the zemindars now must exercise their arbitrating powers in a group--a group that comprises opposing cliques based in neighboring villages. The exclusive local power of each in his own village is a thing of the past. New elections will be held about the end of February 1952, again to choose representatives for the ensuing three-year term in all panchayats.

(ii) The U.P. Zemindari Abolition Act, a device for eliminating landlords as middlemen in the tax system and for reducing their social influence, is being put into effect slowly.

Zemindars are to be replaced by government tax collectors after July 1952. The new role of government is still unclear. Zemindars will be paid dwindling compensation over many years out of money collected now from tenants by government. Tenants will begin to profit by lowered rent after 20 years, since they are now required to pay at the rate of ten times (8) their former legal rent; for the next few years they will be poorer.

Compensation fund (9) "drives" have been held, one drive shortly before my coming to Paril and another since. In these

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- (8) In a number of cases this operates to prevent the peasant from acquiring the land as he cannot afford to pay this enhanced rent, i.e., purchase price.
- (9) So-called because the fund is designed to finance compensation of the zamindars for their lost rights.

drives, government officers and party allies urge, entice, and threaten tenants into paying. Two-thirds of the tenants in Paril have already paid about one-half of the amount demanded from them.

Tenants and zemindars, sharply differentiated in the past, will now have equal powers over their lands and equal security of tenure. (10) New subtenants will not be able to gain occupancy rights as they could in the past, for the new tenants' lands will be like the private lands of a zemindar.

The formal registration of lands that accompanies payment of ten times rent is stimulating further advance subdivision of many lineage holdings in Paril. It seems probable that these formal land divisions will hasten divisions of joint families.

(iii) Election of representatives to the national Parliament and to the state Assembly will be held in Paril on January 28, 1952. For the first time, all adults will have the power to vote. Campaigners of five parties--Congress, Socialist, Peasant-Worker Party (KMP), Rule of God Organization (Ram Rajiya Parishad) and Independent--visit Paril frequently seeking support. All candidates are Jats, two being of the phratry of Paril's own zemindars.

Thus far, as in the past, those seeking support have first applied to persons in the village who have known power, wealth and influence. But voting powers now lie with all adults, that is, with nearly three times as large a number as in preceding elections. Party leaders in the village are now trying to extend greatly their groups of followers. It remains to be seen whether alterations of social structure may develop from this activity.

Summary of Alterations.--The alterations of solidary structures which have occurred over 30 years in Paril may be subsumed under four headings; (a) broader distribution of power--lowering the power of landlords and lenders, loosening the ties binding large groups of dependents to them, emergence of autonomous tenants; (b) wider integration of local groups with outside groups--organizing political contacts at the top of village society, making a few high connections for lesser persons, placing some members of many groups in urban situations; (c) increase in the complexity of the strongest solidary groupings--subdividing of old lineages, adding on of new lineages, dissolving of large and permanent economic dependencies, all leading to more irregularity and fluidity in the pattern of those relationships which are most binding; (d) addition of new formal associations--village assembly and village council. The sum of these induced alterations is not small.

Paril in the Present: Some Further Changes

Over and beyond these four major types of alteration which have been specifically induced in Paril's social struc-

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- (10) The current U.P. Land Law is not so simple and clear cut in its operation. New grades of tenants have been created with varying degrees of permanent rights.

ture through 30 years there have been noted further changes in other social behavior connected with kinship, rank, and political groupings. The following paragraphs on recent changes are impressions of the trend of the evidence to date, plus a few facts. Analysis of full results is by no means complete.

(i) Rank groupings, once well agreed upon, have now become a subject of much disagreement and conflict in Paril. Personal wealth, influence, and morality have far surpassed the traditional caste-and-order alignment of kind groups as the effective bases of ranking. Since such new bases of ranking can no longer be clearly tied to any inclusive system of large solidary groupings, judgments must be made according to the characteristics of individual or family units. This individualization of judgments leads to greater dissensus. Dissensus is greatest on the ranking of persons of lowest rank, least on the ranking of persons of highest rank. Reasons for this differential dissensus may be that the criterion of landed wealth is more objective at the top, and that persons at the top of society are more organized, constituting something approximating a class group.

Competition for higher rank is now great. At least eight of Paril's caste groups are now actively making claims to higher caste standing. The status claims of all are stimulated by areal organizations of the respective castes with which local people have come in contact. Individuals, especially of the tenant class, are devoting great energies to backbiting and to a general informal jockeying for positions of leadership and influence.

(ii) Clans and castes which once had many distinctive customs are tending to drop them in favor of a more generalized culture. Many are beginning to feel defensive about their unique customs. This is true especially of the ritual customs of the lower castes, and also true of some of the customs of the highest clans which have to do with their traditional or ritual occupations. Such distinctive kin group cultures, when they pass away, are being replaced by a general highest-order complex on the one hand and by a very-low-order complex on the other hand. The loss by a caste of its shared unique rituals is the loss of a bond of caste unity.

At the same time that a generalized culture is spreading, individuals are no less bent on elaborating their personal rituals, and on competing for ritual virtue.

(iii) Caste and clan councils, which formerly attempted to handle minor disputes within the larger kin group, have now nearly ceased to be distinguishable as solidary groupings. The old formal councils have, except in one of the two lowest castes, passed away entirely. The remaining informal councils meet rarely, if at all, and are even more rarely able to achieve composition. Yet disputes are by no means less. Indeed, there are major and disabling divisions within each of the larger castes. Such divisions are generally organized around opposing persons of wealth and their striving for dominance of the group. Villagers say that lesser persons cannot be disciplined because they can find refuge in the group's internal divisions. Out-casting cannot occur, and the old refuge of flight is unnecessary.

(iv) Legal conflict, often involving large numbers of persons in opposed factions, has enormously increased in Paril. Quarrels of the vaguest and most trivial sort which would formerly have been settled by group decision of the caste council, or by arbitration of the zemindar are now readily given legal form in the rural court. Once legally formalized, quarrels are protracted long beyond the heated feelings that gave rise to them. A case lasts on the average nearly seven weeks in the rural court. Since a new case begins once a month, there are always two or three in progress. An adult male spends an average of more than a day each month in litigation, and for each day he may travel from eight to twenty-five miles.

Cases are deviously framed. One vague issue easily shifts and diffuses into other issues as new persons join in the same legal battle. To engage in litigation and to practice dishonesty are felt to be synonymous.

Litigation is outstandingly the pastime of Paril's tenants who have recently gained in wealth and power, although loud public quarrels are not unpopular among lesser persons. Zemindars, formerly themselves the all-powerful arbitrators, now maneuver and manipulate tenants' cases through the rural court. They play their game of influence and wits with litigant pawns, preferring to keep themselves aloof. For the tenants, newly secured property rights and ready cash are the materials of litigation. But in villagers' talk, all material contents of cases are polarized around the struggle to gain or keep respect in a world that is felt to be losing the quality of respect.

An individual rarely engages in conflict alone. The litigating groups, which were once generally the following of single zemindars, are now more often impermanent congeries of small cliques--which may well include a zemindar. Each participant clique may have its distinct reasons for joining the conflict. The factions thus formed cannot well become stabilized as secondary associations, for they share only a temporary common activity--and that one charged with divisive rivalry. Besides this inherent reason, formation of any large regular clique would be strongly disapproved by the clan or caste, for the involvement of one member may require the involvement of others. When there is conflict inside a caste or clan, as is now common, however, formation of a non-kin-based faction becomes essential to both participants in the conflict. They must seek allies outside their kin group, despite the negative evaluation of their secondary grouping that will certainly be made by the village as a whole. It thus appears that factions are both despised and made necessary because of the same structural fact--that the community is differentiated into a highly complex pattern of large solidary kinship groups and small economic dependencies.

(v) The new village associations, the assembly and council, are in these circumstances unable to operate effectively, whether to promote village welfare or to compose disputes. There is no dominant zemindar member in the council, although, since the council amalgamates three villages, it infringes upon the territory of two resident zemindars. Only cliques of the zemindars are in the council, not their overbearing power. Little agreement has yet developed as to leadership by and

among the contesting tenants.

The complex pattern of primary solidarities restrains all of the kinds of secondary convivial and interest groupings that might promote community solidarity. Individual friendship, individual membership in any permanent association, individual delegation of allegiance to a leader outside of the kin group--all of these are discouraged. Of themselves, kin groups as wholes move into larger associations only slowly.

Summary.--From contrasting Paril society of thirty years ago with that of the present, it is apparent that the alterations induced in social structure during the intervening period have indeed produced a variety of effects, structural and otherwise. Detailed analysis of process suggests a number of ways in which parts of this social structure have influenced other parts and ways in which changes in parts of this structure have affected other social behavior. (a) Dissensus and competition in ranking is increased by broader distribution of power, by a fluid and complex pattern of solidary relationships and by a widening of group relations outside the village. (b) Loss of distinctive kin-group culture is hastened by competition for rank. (c) Legal conflict and the formation of factions increases with alteration of local power groups, with complexity of social structure, with failure of caste councils, and with integration of local political structures into a wider grouping of powers. (d) Caste councils pass away when they are disrupted by reorganization of power and by competition for rank within themselves. (e) The new village associations' effectiveness is hampered by the complexity of social structure, by the shift of power, and by competition for higher rank.

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A NOTE ON HANDICRAFTS IN UNDERDEVELOPED AREAS

I

The main purpose of this paper is to raise some questions on the place of handicrafts in underdeveloped areas and their possible importance for economic development. These hypotheses arose largely out of a study of Eastern and South-Eastern Europe as they were before the war. They therefore relate to what may be described as underdeveloped but specialized economies. Political developments since the war deprive the analysis of any practical terms of reference so far as that region is concerned. It is hoped, however, that these remarks may suggest some lines of study which are of general interest and which might eventually be useful in considering economic organization in countries more readily accessible to international cooperation than Eastern Europe.

Manufacturing production in handicraft establishments is a definite and specific form of economic organization. The census classification made in various countries varies, (1) but it will be convenient to think of it as consisting of production in small, independent manufacturing establishments, employing up to five persons, and utilizing not more than twenty horsepower. There is a master of the establishment with a staff of craftsmen and apprentices.

The very small unit of production and the strict handicraft form exist in both mature and underdeveloped economies. Germany, for example, has a considerable handicraft sector. Handicraft production is not, however, of the same order in all countries. The level of organization and the nature and degree of refinement of the product vary between countries and between poorer and richer regions of the same country. For example, Rumanian handicrafts are much more primitive in craft and organization than Austrian handicrafts. The average real output in handicraft establishments was smaller in Rumania than in Austria before the war. But while handicrafts are an ubiquitous system of production they are much more important relatively in underdeveloped regions than in advanced economic systems. In fact, in the former, it is the handicraft establishment and not the factory, which typifies the structure of manufacturing.

II

The fundamental reason for the persistence of handicraft production is the general shortage of capital which has inhibited the growth of factory-scale industry and also prevented that generation of consumer incomes which would have been capable of absorbing large quantities of factory products.

(1) For example, in Hungary handicrafts were defined as employing up to ten persons per establishment; in Germany, sometimes by an output limit; in Italy, by a combination of various criteria.

There are, however, other circumstances, some of which it is difficult to assign definitely to cause rather than to effect, which help to explain this freezing of the economic pattern in underdeveloped countries. The suggestions made below are put forth very tentatively. If they are valid, they might be helpful in the further analysis of economic development.

1. For special historical reasons, some economies have been isolated from the main current of industrialization, for example, Eastern Europe during the period of Turkish rule.

2. Some handicrafts may perform a special function in the production of "typical" and "artistic" commodities, and much of this output may satisfy a tourist market. Handicrafts may thus be an important invisible export. This is especially likely when the handicrafts are highly developed, as in Austria.

3. In extremely underdeveloped economic systems, there tends to be a very sharp division between the fundamentally pecuniary economy of the towns and the largely barter economy of the countryside. This means that there are in fact two distinct economies, or levels of economy, within the single (national) economic system. The classic cases of this kind are probably to be found in some colonial territories and in parts of Eastern Europe, but the phenomenon is widespread elsewhere in greater or lesser degree. In the extreme case, the two systems overlap only where, in a basically subsistence agriculture, some cash crop production takes place and provides money with which to cover such expenditures as taxes and the purchase of certain staple items (e.g., salt, matches, paraffin). Sometimes labor from such agriculture plies supplementary trades or engages in seasonal industrial employment.

4. There may be a genuine problem of distribution if transport (and especially, perhaps, road transport) is limited. Although the handicraft output will be sold for money, i.e., is part of a money economy, the two levels described above may "physically" exist. Common knowledge of peasant economies and small town market structure clearly indicates the sharp distinction between the urban economy and the rural way of life. This separation will be perpetuated if the internal trading structure of the economy is fairly rudimentary, even when other reasons for it are tending to disappear.

5. The persistence of handicraft production in general, and in particular industries, may be due to the shortage of resources such as power. There may be special technical difficulties in passing over from handicraft to factory production in some industries.

6. For some handicrafts, there may be an analogy with the behavior of small agricultural producers. It is not unlikely that some handicraft establishments have the survival pattern of the peasant economy or the small urban shopkeeper rather than that of the factory. The demand for the products of handicrafts, especially in the countryside, may be relatively inelastic. It may also be that small overheads, traditional craft attachments, falling raw material prices, and inertia in the face of falling income might keep handicrafts in existence during periods of general depression. Furthermore, if the han-

dicraft establishment can hold on to its traditional markets, protected by other circumstances against outside penetration, it may be to some extent insulated against the impact of cyclical disturbances.

7. The imperfect nature of international markets, together with the limited penetration of new techniques and the low level of consumer incomes, erect a barrier which in a sense isolates underdeveloped economies from the flow of factory products despite the potential market which they offer for standardized products.

These reasons may help to explain why factory production has not ousted handicrafts to a much greater extent than has been the case.

III

The profound differences between economic structures of mature and underdeveloped economies are found in many fields of activity. The study of handicraft may cast light on some of the key problems of economic development.

The task of economic development is frequently discussed as a problem of increasing the flow of capital. While this is of fundamental importance, there are other aspects to be considered. The shortage of capital and of technicians, supervisors, foremen and skilled workers, and the lack of suitable financial institutions limit the capacity of underdeveloped countries to absorb capital. It seems worth examining, therefore, whether it would not be wise to make use of handicrafts in the developmental process. This is particularly relevant in those cases in which handicraft production is carried on at relatively advanced levels of refinement and organization. Even where it is inferior in quality to factory production, or where it hardly exists at all, there may be some advantage in improving and developing what there is.

As the manufacturing system passes over increasingly to a factory basis, the more primitive handicrafts would tend to disappear. But more advanced handicrafts might tend to absorb some of the labor thus made surplus and some of the other surplus labor, for example, from agriculture, into occupations in which it might be less productive than in factories, but more productive than in its original employment. In turn, a part of handicrafts might develop into small or medium-scale production units (for example, on the Swiss model) which would be larger than the original handicraft establishment, and would be factory-type in terms of the relation between capital equipment and labor. This type of development might very easily be suited to the conditions of underdeveloped areas than over-concentration on large units. In addition, while not excluding a certain growth of industries using a great deal of capital equipment, it might also be very well suited to less capital-intensive industries. This is a vital consideration in the condition of capital shortage which is characteristic of underdeveloped countries.

The handicraft system has the advantage of requiring relatively little capital equipment. On this ground alone, it may

be desirable that, even if its relative share in total manufacturing is to decline, its absolute output should grow somewhat, at least for a considerable time. It may also be an especially stable component in total output, since its link with a large sector of the domestic market may partially insulate the system as a whole against economic fluctuations arising externally.

There is an advantage with respect to the labor force. The handicraft establishment may prove a useful and comparatively cheap means of training labor for industrial occupations and thus ease transition to the factory system. The apprentice structure may contribute further to this, and may also help lessen losses due to waste of raw materials in the training period. At the same time, such a system would lessen expenditure on training establishments and would ease the situation resulting from the limited supply of instructors likely to be available in an underdeveloped economy.

IV

The foregoing remarks suggest a number of special points concerning the distinct but related problem of the supply of skilled labor. The problem of labor supply is not confined only to industrialization, since a modernized agriculture will require a higher level of technical skill than is currently found in many peasant populations. Thus the developing economy must anticipate considerable requirements for trained personnel. The supply and quality of management and of high-level technicians would have to be improved. Another acute problem would be that of the supply of job supervisors, foremen and skilled operatives. (2) In addition it would be a delicate matter of timing to prevent the comparatively small minority of skilled personnel from being swamped by the influx of unskilled operatives.

The form and direction of industrialization will greatly affect the magnitude of the problem.

1. If handicrafts play a significant part in the developmental process, the disparity between long-run social returns and short-run private cost may be lessened because of the system of training through craft apprenticeship.

2. An attempt has been made to determine a "skill-factor" in different industries. (3) It has, however, been found diffi-

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- (2) An important problem in its own right is that of the entrepreneurial function. This is especially important for very underdeveloped areas, such as some colonial areas, where an indigenous entrepreneurial class hardly exists. The initiative in such areas will tend to rest very largely with the governing authority. The whole problem is very complex and it may be hazarded as an interesting speculation that an economy developing in this manner might have recourse to bureaucratic initiative. On the other hand, it might develop along quite special lines.
- (3) Skill-factor: for example, ratio of office staff, etc., foremen and skilled workers to laborers and apprentices.

cult to accumulate satisfactory data for economically under-developed countries but some data for one or two countries of Eastern Europe offer a few hints. (4) It seems not improbable that it is the traditional industry of the non-industrialized economy which makes a relatively smaller demand for skilled personnel, and that some industries which are likely to be of growing importance in economic development make a relatively heavier demand for skilled personnel. This reinforces the preceding argument.

V

Traditional skill in agriculture and crafts may be a very useful asset in economic and industrial development. It seems possible that the existence of handicrafts, while posing certain problems for the economy, might help to mitigate the retarding effects of the shortage of capital and of industrially trained labor.

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The difference between the two gives a measure of the importance of administrative and office staff. See also, A. J. Brown, Industrialization and Trade.

- (4) Compared with the skill-factor average for factory manufacturing as a whole, the following initial examples may be given: above average, Engineering, Electric Power; average, Leather, Paper; below average, Textiles. The comparability of "skill" by the measure adopted is open to question. The problem was investigated for Hungary and, with rather unsatisfactory data, for Rumania. See also, A. J. Brown, op. cit.

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